April 1955

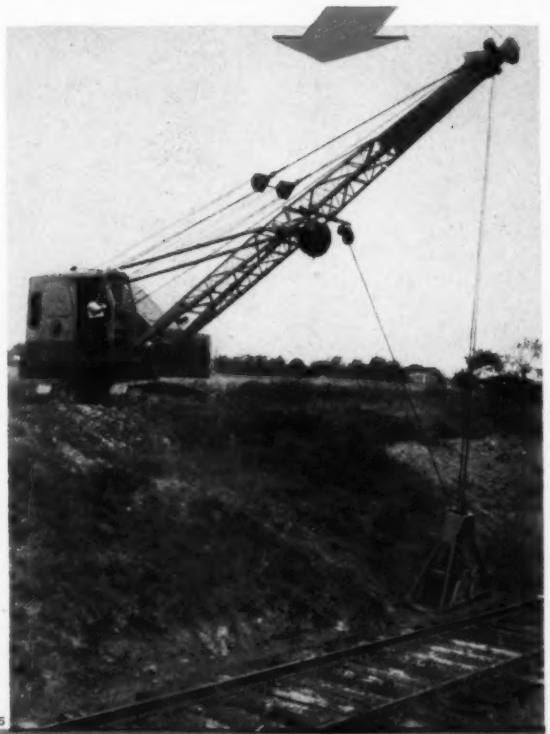
RAILWAY TRACK and STRUCTURES

One of Five Specialized Railway Age Publications

POWERS ITS OWN RAIL CAR . . . gets on or off-track in 10 minutes

To move from one work section to the next, Koehring 205 RailAid takes to the rails, travels on track at speeds up to 20 m.p.h. It's self-propelled, powers its own rail car . . . does 2 to 3 times the work of ordinary excavators or cranes that have to crawl or be hauled from job to job. Because all travel is by rail, crawler life is considerably increased. Yet, you have complete flexibility for working on or off-track.

Koehring 205 loads or unloads itself on ramp-equipped car in 10 minutes. Crane or excavator sets car on or off-track . . . clears the right-of-way for through traffic. You can send it anywhere along the line at a moment's notice to do any digging, lifting or material-handling. It works on or off the propulsion car with all standard attachments . . . cleans ditches, widens embankments, stockpiles coal or ballast, loads and unloads cars, repairs trestles, lays rails, does pile-driving.



You get ½-yard dipper capacity as a shovel or hoe. As a crane, it safely lifts 6.9 tons from car, 8.9 tons on ground . . . converts to clamshell, dragline. For more facts, write: *Koehring Company, Milwaukee 16, Wisconsin.*

KOEHRING RAILAID®

K545

Subsidiaries: KWIK-MIX • PARSONS • JOHNSON

What do you want to know about heat-treated trackwork?

Here you see a typical page taken from the new booklet "Bethlehem Heat-Treated Trackwork." In 24 interesting pages, this publication discusses the development, uses and advantages of heat-treated track components, and takes you on a brief, word-and-picture trip through the heat-treating department at our Steelton, Pa., plant.

Railroaders in maintenance of way and purchases alike will find much that is worth while in this booklet, issued by this pioneer in the heat-treatment of rails. We shall be glad to mail you a copy promptly.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation

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BETHLEHEM STEEL

Published monthly by Simmons-Boardman Publishing Corporation, Emmett Street, Bristol, Connecticut, with editorial and executive offices at 79 West Monroe Street, Chicago 3, Illinois; 30 Church Street, New York 7, New York. Subscription prices: to railroad employees only in the United States and Possessions, and Canada, one year $2.00; $3.00 for two years. Single copy 50 cents. Entered as second class matter at the Post Office at Bristol, Conn., November 26, 1954, under act of March 3, 1879. Volume 51, No. 4.

Bridge over Androscoggin River in Brunswick, Maine: A typical installation of Bird Self-Sealing Tie Pads on older bridge timbers. Photographs ▼ courtesy of the Maine Central Railroad.

Close-up shows effective mechanical adzing and excellent positioning of pads. ▶

Slash your bridge tie costs over 50% with BIRD Self-Sealing TIE PADS

Bird Self-Sealing Tie Pads were installed on this bridge in conjunction with a new rail program. Applied to older bridge decks, which provide a smooth surface on sound wood, Bird Pads will pay substantial dividends in extended service life of timbers in track.

BIRD Self-Sealing Tie Pads form a waterproof, dustproof seal on the tie that protects the vulnerable area under the plates and around the spikes. Mechanical wear and plate penetration are eliminated. This feature is most important on bridge ties which are the most expensive of all ties. *It's a fact:* only two years of additional tie life (over normal expectancy) will more than pay the cost of BIRD Self-Sealing Tie Pads. Insist on a tie pad which will provide an *effective* seal.

YOU GET 50% or more extra tie life from new ties.

YOU GET at least twice the normal remaining life expectancy from old ties that can be adzed to a smooth surface on sound wood.

BIRD PROVEN BEST! The original self-sealing tie pad — proven by years of in-track experience.

Start now. Write today to BIRD Tie Pads, Dept. HTS-4, East Walpole, Mass.

BUY THE BEST **BIRD & SON, inc.** Established 1795 ***BUY BIRD***

"These weeds tickle, George . . . next time let's ride a railroad that uses Chipman weed killers."

Chipman Chemical Company weed killers and application service are backed by over 40 years of experience in serving railroads. An extensive line of weed, grass and brush killing chemicals is available to meet varying conditions. Included are the following:

Atlacide Liquid	Methoxone-Chlorax
Atlacide Spray Powder	Atlas "A" Arsenical
Chlorax Liquid	Atlas Contact
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TCA-Chlorax	Borax • CMU • Dalapon

Let us solve *your* weed problems with the *right* chemicals and application service.

CHIPMAN

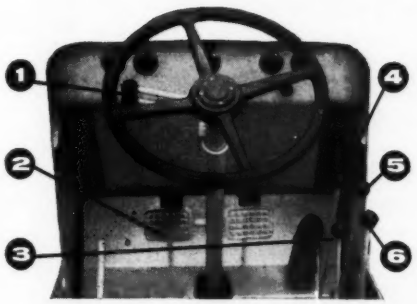
Chemical Company, Inc.

Railroad Div. Headquarters: 608 So. Dearborn St., Chicago 5

Executive Offices: Bound Brook, New Jersey

16 Strategically Located Chipman Plants

Faster, more power,
and LOOK, NO CLUTCH!



It's a pleasure to work here!

1. **Power-shift levers:** for Forward-Reverse and High-Low; make any shift while moving in either direction.
2. **That's no clutch!** It's a double-pedal brake, use it with either foot.
3. **Break-out bucket lever:** work the bucket in the pile—you've got two big double-acting bucket cylinders for tremendous breakout power, independent low-level tip back.
4. **Range Shift:** working or travel speed
5. **Drive Selector:** 4-wheel and 2-wheel
6. **Boom Control**

Until you see a MICHIGAN in action, you won't believe that it's possible to deliver so much power with such ease of operation. Your driver stays at peak efficiency all day long because there's no conventional clutch on a MICHIGAN. Instead, the MICHIGAN's exclusive power-shift transmission does all the shifting hydraulically—and eliminates the most notorious cause of excessive maintenance and driver fatigue.

In addition to effortless, instantaneous shifting, you get up to 300% torque multiplication on a MICHIGAN —from the Clark-built converter. With this kind of smooth, shockless power transmission, you get the full advantage of the MICHIGAN's extra weight and higher horsepower.

A demonstration (on your own job, if you wish) is the only way to get a real understanding of what this machine can do! Just write or call us—and don't forget that all MICHIGAN's are available on the low-cost MICHIGAN Lease Plan.

CLARK EQUIPMENT

CLARK EQUIPMENT COMPANY
Construction Machinery Division
492 Second St., Benton Harbor 28, Michigan
Phone: WA 6-6184

One of the 160 Uses of CONCRETE on Railroads

NO. 24 OF A SERIES

Photos show construction views of the Pennsylvania Railroad's ore unloading pier at South Philadelphia. The 76- x 850-ft. pier required 100,000 lin. ft. of precast concrete piles (above) and 8700 cu. yd. of concrete for the pier deck (below).

Concrete for loading piers is just one of more than 160 uses for portland cement and concrete which enable American railroads to improve service and save time and money. The moderate first cost of such concrete improvements—plus their long life and low maintenance cost—result in ***low-annual-cost*** service. This saves money for other essential budget items.

PORTLAND CEMENT ASSOCIATION
33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

GRADALL RE-ALIGNS TRACK AT ¼ PREVIOUS COST!

Gradall's powerful arm-action boom pushes, pulls and lifts, accurately and quickly aligning track.

THIS CENTRAL RAILROAD of New Jersey job was to move 3,000 feet of main track over two feet to make room for a temporary detour line. It was estimated at $6,300, based on the time and cost of the fifteen-man crew previously used.

This remote-control Gradall, requiring just one man, with two track men did the job *faster* and for an actual cost of only $1,400—less than one-fourth the estimate!

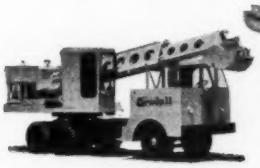
The Jersey Central keeps the Gradall busy every day—all year long—profitably handling such a wide variety of jobs as:

- Ditch maintenance
- Installing culverts
- Track cleaning
- Installing crossings
- Repairing roadbed and distributing ballast
- Emergency work
- Demolishing buildings

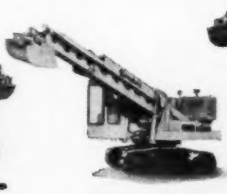
This is just a partial list. You'll have many other jobs where this single machine can cut your maintenance-of-way and construction costs. For a field demonstration right on your road, write: The Warner & Swasey Company, Gradall Division, Cleveland 3, Ohio.

After moving and aligning track Gradall distributes ballast along relocated section.

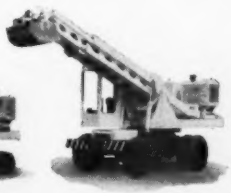
NOW ALSO AVAILABLE



GRADALL—STANDARD CARRIER



CRAWLER-MOUNTED GRADALL



SELF-PROPELLED GRADALL

Gradall
DIVISION OF WARNER & SWASEY Cleveland
PRECISION MACHINERY SINCE 1880

Distributors in over 75 principal cities in the United States and Canada

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY

RUST-OLEUM

STOPS RUST!

Cut Your Maintenance Costs On Signalling Equipment, Rolling Stock, Bridges, Towers, Tanks, etc.

Here's the *practical, sensible* answer to your rust problems! Costly sandblasting or chemical precleaning are not usually required . . . just wirebrush and scrape to remove rust scale and loose particles . . . then apply RUST-OLEUM by brush, dip, or spray over the rusted surface. Dries to a tough, elastic, rust-resisting film that lasts longer applied over rusted areas. So easy to use that one man often does the work of two . . . saves you time, labor, and money. Get the complete story from your RUST-OLEUM Rust Preventive Railroad Specialist today!

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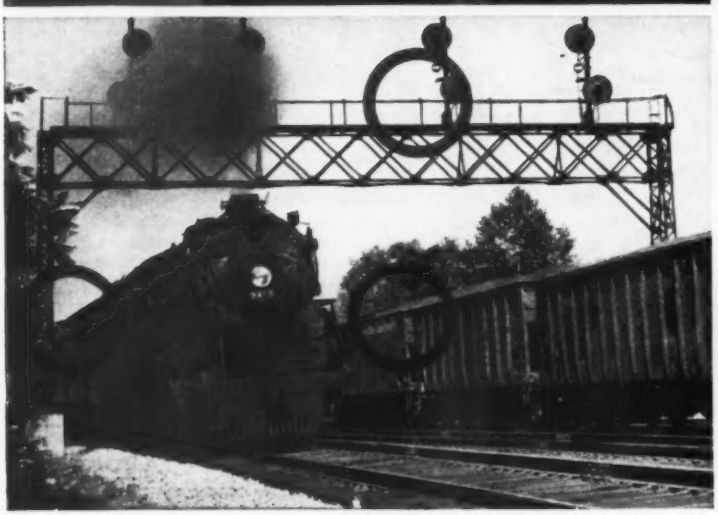
Available In All Colors, Aluminum and White



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4 JUMPS AHEAD OF COMPETITION...

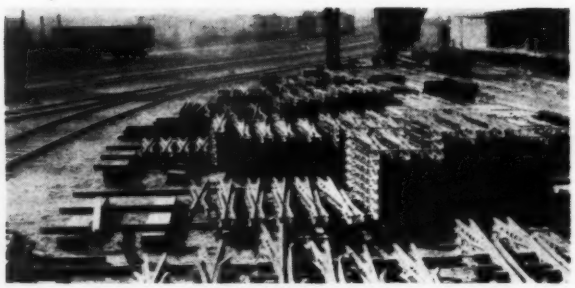
Yes, the Universal Frog for yard service is built better 4 ways . . .

- It is made of an alloy electric cast steel that adapts itself to low cost electric or oxy-acetylene welding in track or shop.
- Tie plates are cast integral with the Universal Frog—an exclusive!
- Rail supports are cast integral on both ends of the Universal Frog —another exclusive!
- One-piece construction — no loose joints. Eliminates extra parts and cuts down maintenance costs.

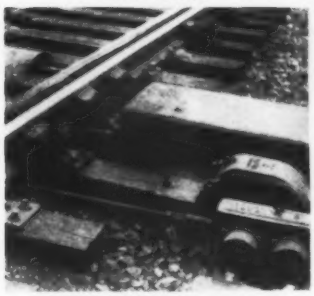
HERE'S PROOF: Compare the cross sections of the Universal Frog with conventional types. Note the improved type rail joints, the patented supporting shelf, integral tie plates and rib construction.

Rail Joints

Bridges



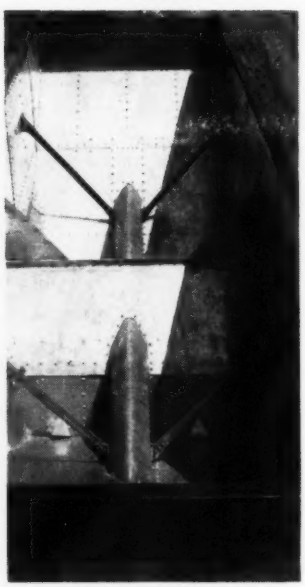
Stored Materials



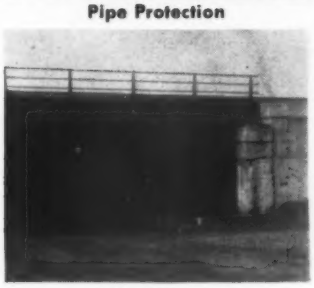
Signal Equipment

Car Journals

Pipe Protection



Car Construction



Viaducts

Steel Tanks

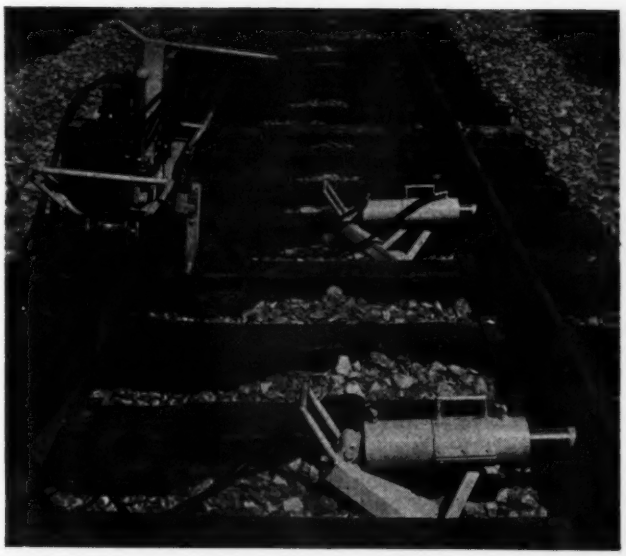
Street Crossings

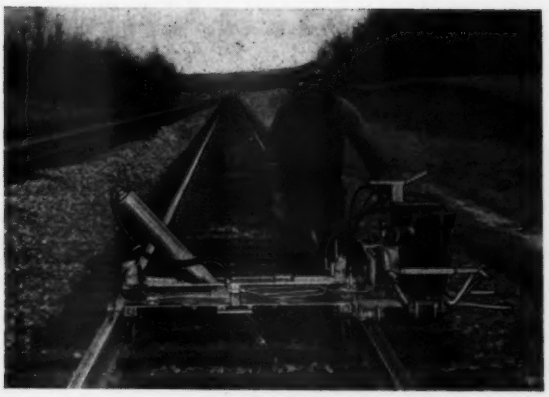
There is a DEARBORN NO-OX-ID®
for every railroad application

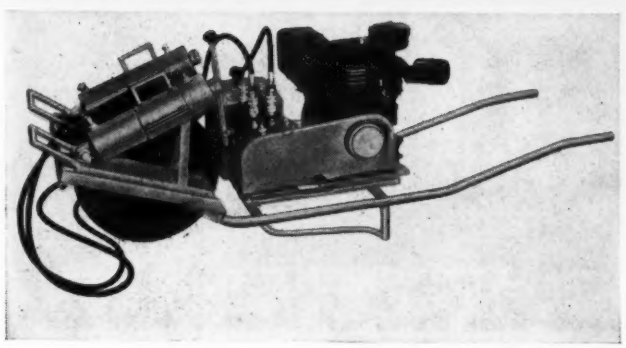
NO-OX-ID PROTECTS . . . NO-OX-ID SAVES

Dearborn® Chemical Company

Merchandise Mart Plaza • Chicago 54, Ill.







Upper left—Model P-O, gasoline engine powered Hydraulic Track Liner operating two hydraulic rams.

Upper right—Model P-O gasoline engine powered Hydraulic Track Liner operating attachment with double flanged track rollers, adjustable for any height and weight of rail.

Lower left—Model P-O gasoline engine powered Hydraulic Track Liner and two hydraulic rams mounted on wheelbarrow type frame that can easily be operated or transported by one man.

Lower right—Model H-O Hydraulic pump, light weight, hand operated, that will supply power for one (as shown) or two rams. Ideal for small gangs.

RTW HYDRAULIC TRACK LINER

More track lined per hour with Minimum effort and expense

The RTW Hydraulic Track Liner—Model P-O—was devised and designed by railroad engineers thoroughly familiar with maintenance of way problems.

A light rigid self contained attachment with double flanged rollers used with the P-O Track Liner adjusts to any height or weight of rail. It supports a portable air-cooled 8 horsepower gasoline driven engine. This power plant can be used with two hydraulic rams for lining thru switches, road crossings, etc., as well as supplying power for the attachment for out-of-face lining. Its light weight and portability reduces operator fatigue.

This equipment is also available mounted on a wheelbarrow type frame that can be transported by one man for use in heavy traffic areas.

The hand operated hydraulic pump, available with either one or two hydraulic rams, is ideal for spot lining with small gangs.

The interchangeable units of these highly portable power operated Hydraulic Track Liner combinations afford a smaller force, the equipment necessary to do the work that normally would require heavier oversized machines and a large crew.

Write for complete details today

Railway Track-work Co.

3207 KENSINGTON AVE., PHILADELPHIA 34, PA.

TRACK MAINTENANCE MACHINERY

Rail Grinders • Switch Grinders • Cross Grinders • Surface Grinders • Rail Drills • Ballast Extruders • Bit Sharpeners • Tie Nippers • Grinding Wheels • Cut-off Wheels • Track Liners

GREATER SAFETY AND EFFICIENCY IN MOTOR CAR OPERATION with *Federal* 2-WAY MOBILE RADIO SYSTEM

Gives your work crews fast, direct, dependable radiotelephone communication from motor car to motor car . . . to walkie-talkie . . . to fixed stations . . . to moving trains equipped with radio!

Overall Features of Federal's FT-156-10 and FT-153-10

Designed to meet or exceed all FCC regulations and RETMA specifications

- 10 watts power output
- Low standby battery drain
- Adjacent channel receiver
- Adaptable to various mounting arrangements
- Small, compact, rugged
- Quickly-removable chassis
- Easy to install and maintain

Federal 2-way mobile radio starts paying dividends right away . . . all along the right-of-way! Bigger dividends in safety for motor car crews . . . in faster and more efficient road inspection and maintenance operations.

Motor cars can be speedily informed on position of trains . . . receive orders and instructions on location . . . transmit information and emergency calls . . . save mileage, man-hours and fuel.

In addition to the four types of contact shown above, motor cars can talk to the dispatcher when car is within the range of a fixed station, or make contact through trains with radio.

Federal's FT-156-10 and FT-153-10 two-way systems are outstanding for their ruggedness and reliable performance under *tough* conditions. Both are compact, one-package systems . . . easy to mount . . . simple to maintain . . . economical to operate. Write for complete details.

FT-153-10: Designed for mounting in exposed locations (with accessory weatherproof housing)

Distributed by Federal's Railroad Industry Sales Organization. Address inquiry to Dept. P-686.

Federal
A DIVISION OF I.T.&T.

Federal Telephone and Radio Company
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100 KINGSLAND ROAD • CLIFTON, NEW JERSEY
In Canada: Standard Telephones and Cables Mfg. Co. (Canada) Ltd., Montreal, P. Q.
Export Distributors: International Standard Electric Corp., 67 Broad St., New York

Compression-Held
WELDED RAIL

Protected Against Movement in Either Direction

The economy of continuous pressure welded rail through bridges, tunnels, station platforms and in main line track has been convincingly demonstrated time and again. Herewith you see a typical installation of continuous rail on a prominent road. It is significant that on this and many similar money-saving installations of welded rail—COMPRESSION two-way holding is *preferred* anchoring.

The RAILS Company

RAILS-Co

Hoboken · Chicago · St. Louis

Save money with True Temper double-jawed RAIL ANCHORS

● The most important feature of a rail anchor is its ability to grip the rail so tightly that it cannot slip or creep. One look at the True Temper anchor will show you why it grips more firmly.

Note the double jaws . . . designed to anchor the rail at two points. Note the broad, heavy flange that presents a greater area to butt against the tie. And note how easily it can be positioned for accurate driving.

Consider, too, these extra True Temper features:

Apply with any standard striking tool
Not affected by frozen ballast
Greater protection in case of derailments
Impossible to overdrive
Better fit on worn or corroded rails
Easy and safe to re-install

TRUE TEMPER®

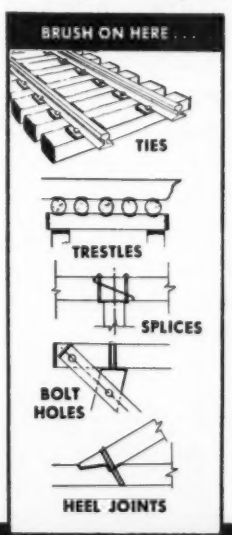
Railway Appliance Division • Cleveland, Ohio

TRUE TEMPER RAILWAY TOOLS

BRIDGE TIMBERS LAST LONGER COST LESS...

WHEN THEY'RE SPOT-TREATED WITH **OSMOPLASTIC**

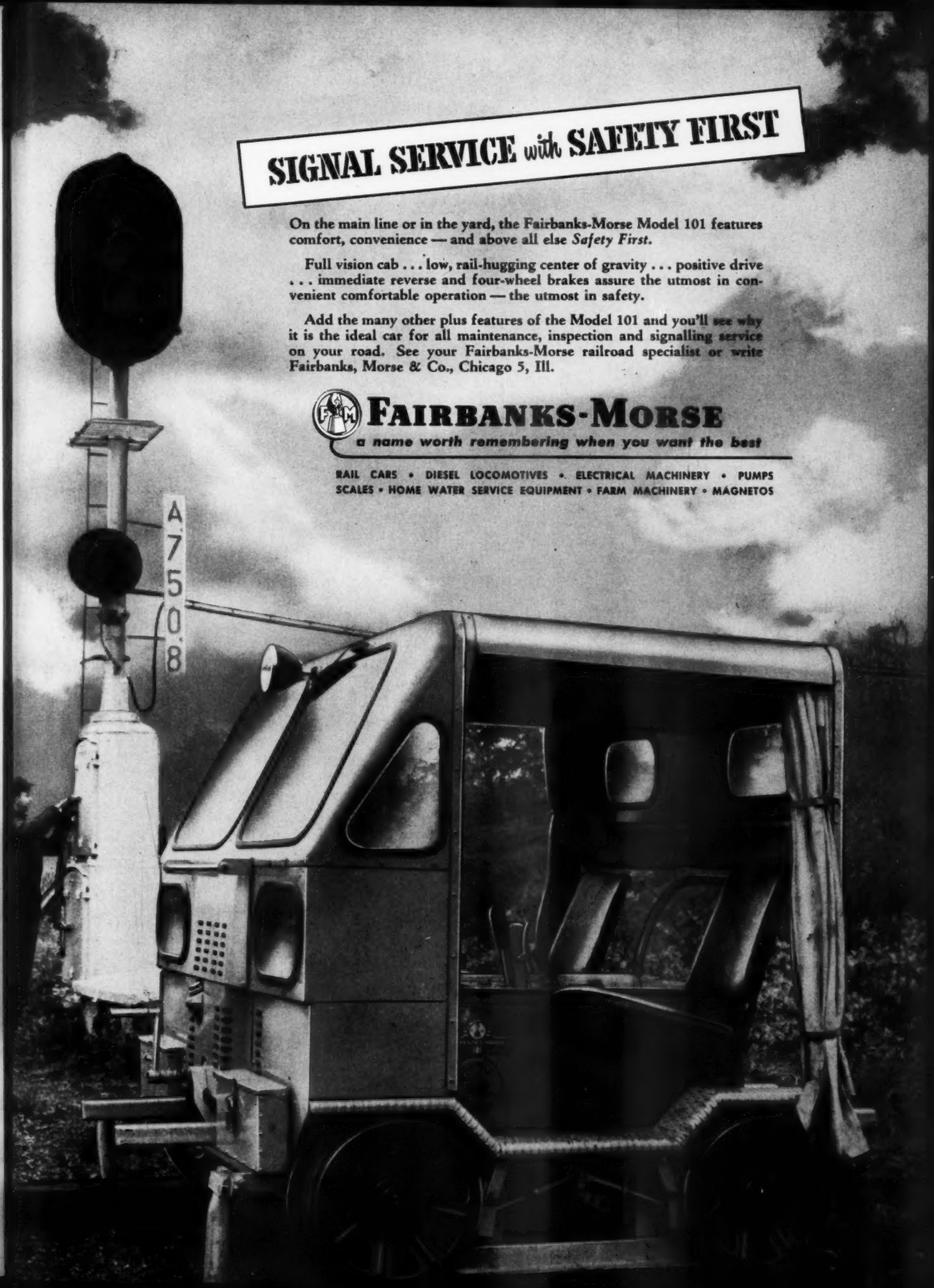
4 WAY CHEMICAL ACTION of Osmoplastic has proven itself highly effective over the years. B & B Engineers will find that this 4-way action seals out moisture and grit from the vital spots like bolt and spike holes, heel joints, splices and surfaces of stringers where they contact other members. Osmoplastic also hardens wood, which combats spike pull and reduces "plate cutting". Deep penetration by this famous wood treating product RE-INFORCES the preservative action of creosote in timbers, making structures last YEARS LONGER. CUTS maintenance costs drastically. So EASY to use! Just BRUSH ON where directed.



WRITE FOR FOLDER! Get all the details in this illustrated folder.

ALSO Our BRIDGE SPRAY SERVICE crews will "spray treat" complete existing structures for you. Ask us!

OSMOSE WOOD PRESERVING COMPANY
America's Biggest Manufacturer of Wood Treating Specialties
980 ELLICOTT STREET BUFFALO 9, N. Y.



SIGNAL SERVICE with SAFETY FIRST

On the main line or in the yard, the Fairbanks-Morse Model 101 features comfort, convenience — and above all else *Safety First.*

Full vision cab . . . low, rail-hugging center of gravity . . . positive drive . . . immediate reverse and four-wheel brakes assure the utmost in convenient comfortable operation — the utmost in safety.

Add the many other plus features of the Model 101 and you'll see why it is the ideal car for all maintenance, inspection and signalling service on your road. See your Fairbanks-Morse railroad specialist or write Fairbanks, Morse & Co., Chicago 5, Ill.

FAIRBANKS-MORSE

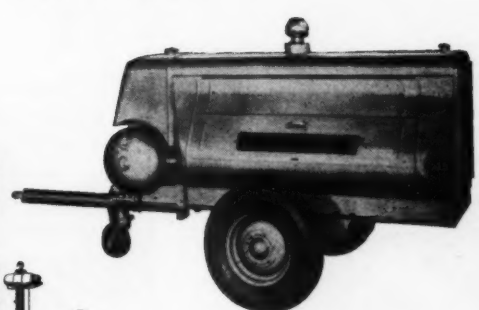
a name worth remembering when you want the best

RAIL CARS • DIESEL LOCOMOTIVES • ELECTRICAL MACHINERY • PUMPS
SCALES • HOME WATER SERVICE EQUIPMENT • FARM MACHINERY • MAGNETOS

Gardner-Denver Maintenance Tools make plant housekeeping easier

Good industrial maintenance often calls for concrete demolition, masonry drilling, heavy lifting, tough digging, firm backfilling — jobs done quickly and easily by the crew that's equipped with these costsaving Gardner-Denver Air Tools —

Write for descriptive bulletin.



The Gardner-Denver WH-125 — puts compressed air where you need it for operating these tools — for cleaning — for paint spraying.

GARDNER-DENVER

THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS FOR CONSTRUCTION, MINING, PETROLEUM AND GENERAL INDUSTRY

Gardner-Denver Company, Quincy, Illinois

In Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Avenue, Toronto 16, Ontario

RAILWAY

TRACK and STRUCTURES

Subject:

Dear Readers:

Business Barometer

Business generally is picking up. In making this statement we are not relying on any of the usual indices of activity, such as carloadings, the rate at which the steel mills are operating, the volume of bank loans, or the fluctuations of the stock market. We have our own barometer of business health, which, although it may not be as accurate or precise as the more common indices, is just as reliable.

Before going further I have a question to ask. Has the volume of business mail coming to your desk shown an increase in recent weeks? I refer to such matter as direct-mail literature and announcements from manufacturers of new or improved products. If it has shown an increase, your experience confirms our own—and that is our index of business activity.

An editor, I presume, receives a much wider range of material through the mails than the average business man. This is so because he has at his disposal a means (his magazine) of disseminating information to a selected audience. He is, therefore, subjected to a constant barrage from persons and manufacturers wishing to reach his particular readers. This barrage consists largely of press releases dealing with new or improved products and changes in personnel, new business obtained, consolidations of companies, and plans for new manufacturing facilities or sales outlets. To this we must add direct-mail literature received from manufacturers, and material and letters sent in by readers and the companies served by the magazine—in our case the railroads.

Recently the amount of such matter coming to our desk has shown a phenomenal increase. One incoming batch is hardly cleared away before another and larger stack is set before us. Let us be away from the office for a few days and we are confronted with a formidable pile a foot or more in depth when we return. From long experience we have learned this is a sign the manufacturers in our field are either experiencing an increase in sales or are expecting an upturn to take place and are preparing to take advantage of it by sprucing up their products, by bringing out new ones, by strengthening their sales organizations, and by stepping up the flow of direct-mail literature.

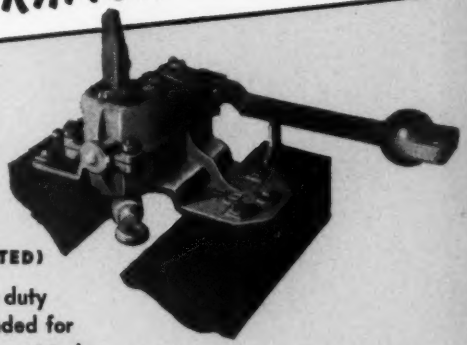
Because it is an omen of better times we are happy to see our mail increasing. On the other hand we recognize that such an increase places an additional responsibility on us. Much of the mail received is of little or no interest to our readers and can, accordingly, be passed immediately to the waste basket. Before this can be done, however, every piece must be examined for anything of value to you or to us in the interest of keeping in touch with developments in our field.

All of which makes me wonder to what extent you read the "throwaway" items that come to your desk. We read—or at least, scan—everything of this nature because that's part of our job and we have to do it even if less time is left for other things. With most of you it's different, and I suspect much of this kind of mail goes directly into your waste basket. Perhaps you may wish to keep in mind the fact that we get many of the same items of mail you do and that, with your interests in mind, we do a pretty careful job of processing them for use in the magazine. MHD

AMERICA'S most complete line of SWITCH STANDS

RACOR
REG. U.S. PAT. OFF.

FOR MAIN LINE or YARD USE
HIGH or LOW TYPES
FOR RIGID or AUTOMATIC OPERATION



STYLE 22 (PATENTED)

STYLE 22 is an extra heavy duty automatic stand recommended for turnouts where switches are apt to be run through. Stand can be hand thrown as well as thrown automatically. When stand is trailed, the switch points are partly opened by the wheel flanges and throw to the opposite position is automatically completed by the stand. During automatic operation the target lamp rotates to indicate position of the switch points while hand lever remains stationary. Separate padlock pedestals will be furnished when specified for application over the integral lever rests if padlocking of hand lever is necessary.

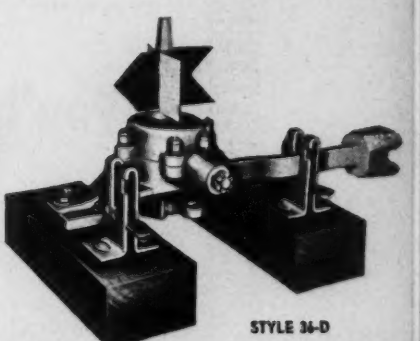
STYLE 112-D

STYLE 112-D is an extremely rugged, column type of MAIN LINE switch stand. Body casting and handle bracket are malleable iron. Spindle and hand lever are forged steel. Hand lever can not become disengaged from bracket due to its novel design. It is thrown parallel to track, thus safeguarding the operator. All parts are easily accessible to inspection and double protection is provided against dropping of spindle.

STYLES 36-D and 36-H (PATENTED)

STYLES 36-D and 36-H are parallel throw gearless stands. Operating parts and base castings are interchangeable and provide a basic assembly for high and low stands. For MAIN LINE or YARD use. No pins to shear. Long life and minimum of lost motion assured by the extra large bearing surfaces of the few heat treated forged wearing parts.

STYLE 36-H



STYLE 36-D

All of the above Stands are equipped with 1¾" diameter forged steel, heat-treated adjustable crank eyes and adjustable connecting rods which permit accurate setting of switch points without respiking of stands. The heavy adjustable crank eyes provide strength exceeding that of the strongest rigid-type cranks. RACOR Switch Stand designs have been developed from a wealth of knowledge acquired from many years of experience and research in the exclusive manufacture of special track equipment.

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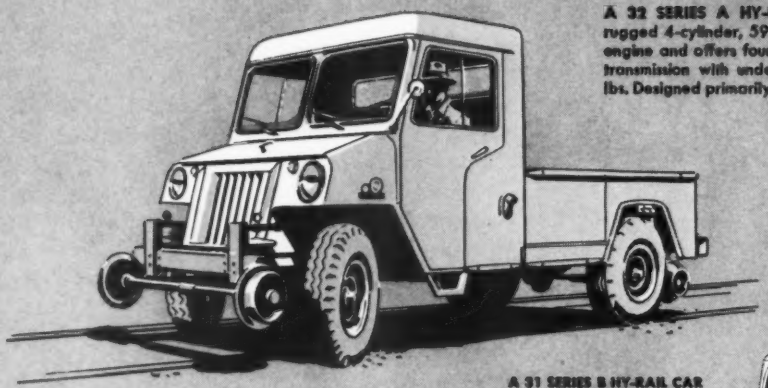

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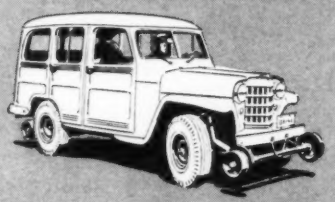

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April, 1955 **Vol. 51, No. 4**

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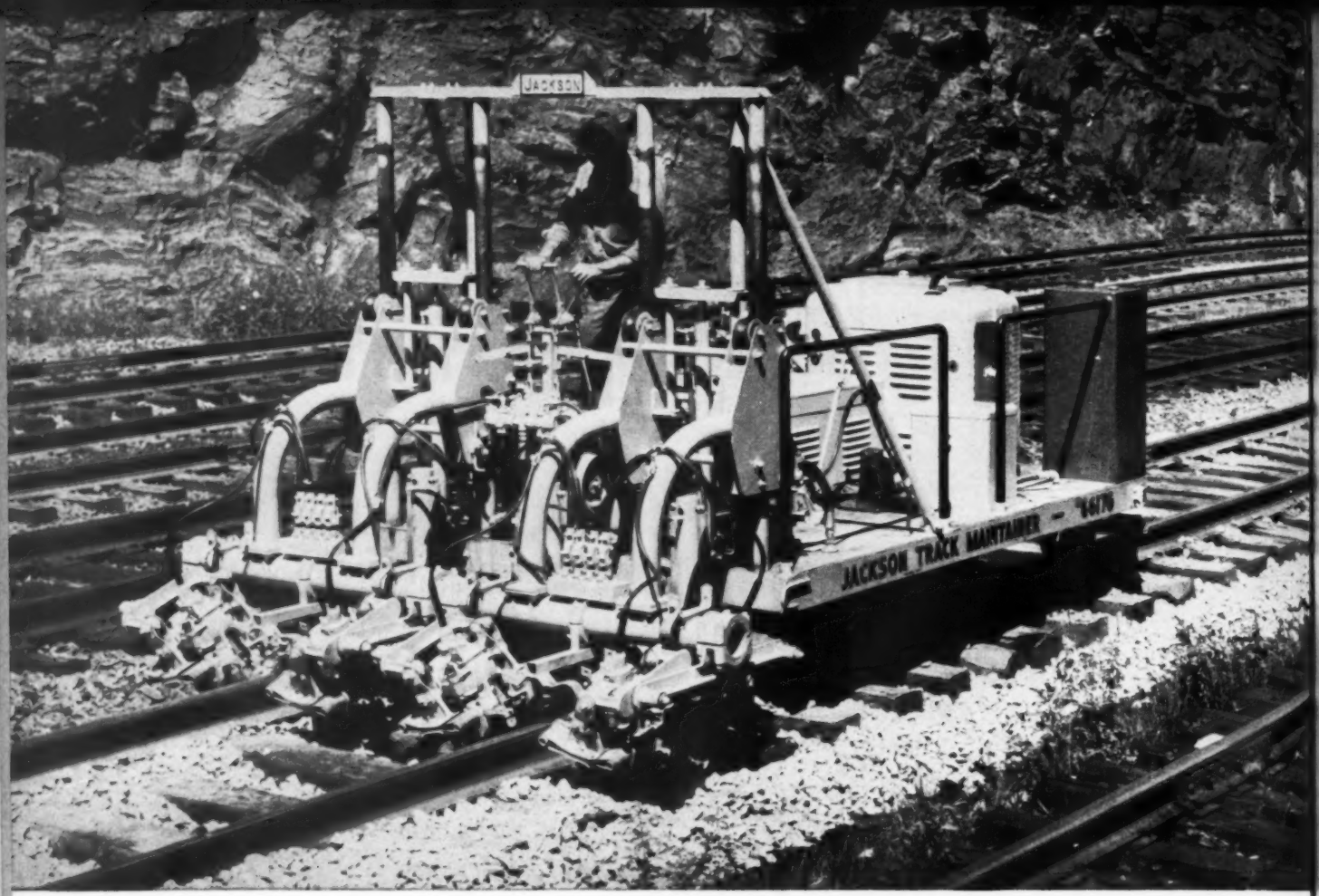

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The Other Side of the Coin

Only one who has spent much time trying to convince others that they should join this or that organization knows that this sort of activity can sometimes turn out to be extremely frustrating.

The number of so-called "joiners" in this world is actually very small, relatively speaking, and the people outside this group exhibit varying degrees of resistance to taking part in organization work.

All too frequently the persuasion and the acceptance are on the basis of what the individual stands to gain through membership. In other words, the motives brought into play are purely selfish. This is an accepted technique of selling; to sell the prospect you have to show him where *he* will profit by the deal. From time to time editorials appearing on these pages have stressed this approach in trying to convince readers they should join one or more of the organizations in the railway engineering field—the AREA, the Roadmasters' and Bridge & Building Associations, or the several Maintenance of Way Clubs in large cities.

With no thought of questioning the validity of this approach, it may be pointed out that there is another side to the coin which deserves serious consideration. That is the viewpoint that railway engineering and maintenance-of-way officers have an *obligation* to join and support one or more of these groups. The railroad industry is fighting for its existence. Anyone identified with that industry, who is in a position to contribute experience, skill or knowledge to the solution of its problems, is shirking a responsibility when he shuns activities having that objective.

It may be argued that the motive here is selfish, too, because the ultimate objective is self-preservation by helping to strengthen the industry on which we are dependent. True enough; but isn't it worth something to be able to say that a contribution has been made in return for value received?

Use of Prestressed Concrete

By prestressing concrete it is possible to overcome many of the traditional difficulties encountered in the use of reinforced concrete. For example, the structural members can be shallower in depth—a welcome feature where under-clearance is a problem. The decreased weight of sections simplifies erection. Finally there is a reduction in the amount of reinforcing steel required, resulting in savings in the cost of such steel.

The extent to which prestressing has been accepted in the construction field generally is evidenced by the number of structures of all classes reported as successfully completed in the columns of the engineering press in this country and abroad. Also, the more than ninety concrete-products plants located throughout the country that are equipped to custom fabricate prestressed, precast concrete members and sections reflects, to some extent, the demand for such products.

What has the railroad industry done to adapt this technique to its own uses? An elaborate series of tests, sponsored by committees of the AREA and financed by the AAR were carried out in Denver in 1953. A set of test slabs is now in service in a railway bridge. (See article beginning on page 35 of this issue.)

There are many situations in railroad service where prestressed concrete construction would seem to offer advantages. Bridge engineers will wish, of course, to follow the performance of the test slabs now in service through the reports that will doubtless be made from time to time by the AAR research staff.

However, in view of the satisfactory service records of prestressed structures in other fields, there appears to be no reason why the railroads should not now be benefiting from this form of construction wherever it is applicable.

AREA Holds Its Largest Convention

Record attendance at annual meeting attributed to faster pace of technological progress and large exhibit of manufacturers' products. Membership also reaches new high level.

In the Grand Ballroom of the Palmer House during the opening session on March 15.

Were You There?

People make any organization or meeting, and there were plenty of them at the AREA convention. On these pages are presented photographs taken at random at the hotel and the Coliseum. Look them over. Perhaps you will find your own picture or those of friends or acquaintances.

President Miller addressing the meeting.

● Railway engineering and maintenance officers who attended the 54th annual convention of the American Railway Engineering Association at Chicago last month must certainly have gained renewed faith in the importance of the work they are doing. This conclusion is justified on the basis of a number of observations.

In the first place, it was the largest convention ever held by the association. Registration reached a total of 2,375 persons, including 1300 members and 1075 guests. The largest previous convention was held in 1949—the association's Golden Jubilee year—when the total registration came to 2,124 members and guests. A factor in helping to stimulate attendance this year was the large products exhibit that was staged concurrently at the Coliseum in Chicago by member companies of the National Railway Appliances Association.

A second factor helping to enhance the feeling that railway engineering and maintenance work

(*Continued on page* 32)

Frank Simmons, Fairmont Railway Motors; W. P. Scherfenberg, J. M. Hoffman and G. L. Zipperian, Great Northern.

B. O. Johnson, H. C. Paton, T. M. Pajari, all of the Milwaukee; J. F. Beaver, Soo Line.

R. J. Stone and E. L. Anderson, St. Louis-San Francisco; W. H. Hobbs, Missouri Pacific.

C. E. Ekberg and H. R. Peterson, Northern Pacific; V. C. Hanna, Terminal Railroad Association of St. Louis.

J. J. Gallagher, P & M Co. and E. C. Vandenberg (ret.), C&NW.

C. E. Jewell and J. E. Price of the New York Central.

J. B. McWilliams, Railway Maintenance Corp., and W. E. Kropp, Lehigh Valley.

A. B. Hillman, Jr., and R. G. Michael, Chicago & Western Indiana, and E. F. Snyder, Illinois Central.

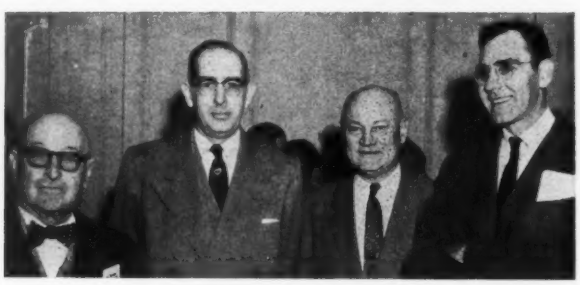
A. P. Kouba, PRR; W. S. Lacher, secr'y AREA (ret.); A. R. Wilson (ret.) PRR; Albert Reichman (ret.), American Bridge Co.

H. S. Johnson and R. G. Simmons of the Milwaukee.

Cliff Bronson (ret.), New York Central, and E. J. Brown, Burlington.

F. H. McKenney, Burlington, and J. S. Hancock, Detroit, Toledo & Ironton.

W. G. Burres, Portland Cement Assoc.; R. E. Paulson and J. K. Freeman, both of the Milwaukee.



R. M. Edmonds, Railway Tie Assoc.; O. O. Albritton, Illinois Central; W. P. Arnold, Koppers Co.; P. D. Brentlinger, PRR.

has taken on new importance was the evidence, to be seen on every hand, that technological progress in the field has definitely gained momentum. Part of this evidence was the exhibit, where could be seen many improved products, many of which were so radically new in concept and appearance as to indicate that the approach to some aspects of maintenance work is undergoing revolutionary changes.

Evidence of technological progress was not, of course, confined to the exhibit. Almost every committee report or address contained information that new ideas were taking hold and making themselves felt in practical ways.

A prominent research engineer was even heard to express surprise over the rapid technological changes that are taking place. This was G. M. Magee, director of engineering research, AAR, who made this statement in an address entitled "Railroad Research Centers on New Horizons," which he delivered at the opening session of the convention on March 15.

The scope of the new information that was made available at the meeting was matched by the apparent eagerness of those present to absorb it. This was indicated by the fact that the attendance in the meeting room was highest when new ideas were being discussed.

H. E. Durham, AAR, and D. A. Kuebler, Kansas City Southern.

W. A. Kingman (ret.), Santa Fe, and R. M. Smith, Missouri Pacific.

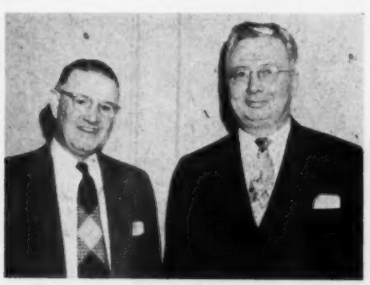
R. H. Beeder, Santa Fe, and B. H. Crosland, Frisco.

G. E. Shaw and C. A. Colpitts of the Canadian Pacific; R. W. Mauer, Santa Fe; T. W. Creighton, CPR.

R. L. Cochrane (ret.) and R. S. Belcher (ret.), Santa Fe; G. W. Kuehn, American Creosoting Co.; T. H. Friedlin, NYC.

C. H. Sandberg of the Santa Fe and J. M. Trissal, Illinois Central.

O. G. Wilbur, Baltimore & Ohio, and R. G. Angell, A. M. Byers Co.



H. J. Weccheider and R. H. Jordan, both of the Erie.

F. E. Short, Frisco; Jim McComb, Ramapo Ajax; K. W. Schoeneberg, Frisco; E. F. Salisbury, Kansas City Southern.

A. A. Schwarzbach, General RR Commissary Co.; J. F. Schnell, Erie; C. K. Scott, L. B. Foster Co.

It was noticed, for example, that the meeting was unusually well-attended at the closing session on Thursday morning, during a panel discussion of continuous welded rail and 78-ft rail. Observers were also impressed by the amount of discussion from the floor.

The convention, as usual, consisted largely of the presentation of reports by the association's 22 standing committees. In addition, there were a number of addresses on technical subjects, most of which were sponsored by particular committees.

A special feature of the program was a "question and answer" session on the possible applications of atomic energy in the railroad field. The questions were asked by Ray McBrian, engineer of standards and research, Denver & Rio Grande Western, and a member of the AAR Committee on Atomic Energy, and the answers were given by Col. Ralph L. Wassel of the United States Air Force.

All sessions of the meeting were directed by G. W. Miller, president of the association, and engineer maintenance of way of the Canadian Pacific's Eastern Region, assisted by Secretary Neal D. Howard and Vice-Presidents G. M. O'Rourke, assistant engineer maintenance of way, Illinois Central, and Wm. J. Hedley, assistant chief engineer, Wabash.

S. E. Haines, Jr., Reading, and F. C. McKenna, National Aluminate Corp.

D. B. Mabry, T. J. Moss Tie Co., and J. C. Ryan, New York Central.

T. K. Dyer, Boston & Maine, and J. P. Bowers, O. F. Jordan Co.

H. W. Kellogg, Chesapeake & Ohio; W. M. S. Dunn, Nickel Plate; L. C. Blanchard and E. C. Jordan, both of the Milwaukee.

P. O. Hansen, Armco Drainage & Metal Products; H. M. Harlow, Chesapeake & Ohio; E. T. Cross, also of Armco.

LADIES TOO—Group of 30 wives of Southern representatives at convention gathered in Empire Room of Palmer House for lunch.

C. B. Porter and M. I. Dunn, both of Chesapeake & Ohio.

W. R. Wilson, Santa Fe, and A. R. Harris, Chicago & North Western.

It was brought out during the reports of the president and the secretary that membership in the association is at an all-time high. As of February 1 this year, the membership stood at 3,278, a net gain of 21 compared with the previous year, 1954.

It was stated that the membership has thus shown an increase every year since 1944.

The following officers were elected: President, Mr. O'Rourke, and vice-president to serve for two years, Ray McBrian.

The directors elected were E. J. Brown, chief engineer, Burlington Lines, Chicago; F. R. Woolford, chief engineer, Western Pacific, San Francisco; R. H. Beeder, assistant chief engineer system, Santa Fe, Chicago; and C. J. Code, assistant chief engineer—engineer of tests, Pennsylvania, Philadelphia. Members of the nominating committee are: A. B. Hillman, chief engineer, Belt Railway of Chicago—Chicago & Western Indiana, Chicago; R. R. Manion, chief engineer, Great Northern, St. Paul; J. M. Trissal, assistant chief engineer, Illinois Central, Chicago; E. L. Anderson, chief engineer, Frisco, Springfield, Mo.; and L. H. Laffoley, engineer of buildings, CPR, Montreal.

In addition, Mr. Hedley was automatically advanced to senior vice-president, succeeding Mr. O'Rourke.

Now in Railroad Service . . .

BRIDGE in which prestressed slabs (left) have been installed.

Research engineers of the AAR had decided to build a full-scale prestressed concrete bridge slab and to test it to failure in the laboratory. When they found it would be almost as easy to build three such slabs as one, the three were constructed and two of them were placed in service in a new bridge on the Chicago, Burlington & Quincy.

CONTRASTING thicknesses of prestressed (left) and conventional slabs are evident here.

First Prestressed Concrete Slab

• This story involves a bridge consisting of two concrete-pile trestle approach spans on each end of a short through-plate-girder span over a minor waterway. There are probably hundreds of similar bridges scattered along the lines of this country's railroads. This particular structure is notable, however, because the deck slabs in one of the spans represent the first use of precast prestressed concrete on an American railroad.

This bridge, located between Hunnewell, Mo., and the Salt River, is on the Chicago, Burlington & Quincy's main line between Quincy, Ill., and Kansas City. It was constructed in connection with a minor realinement of this line built to reduce curvature on the eastern approach to the Salt River bridge.

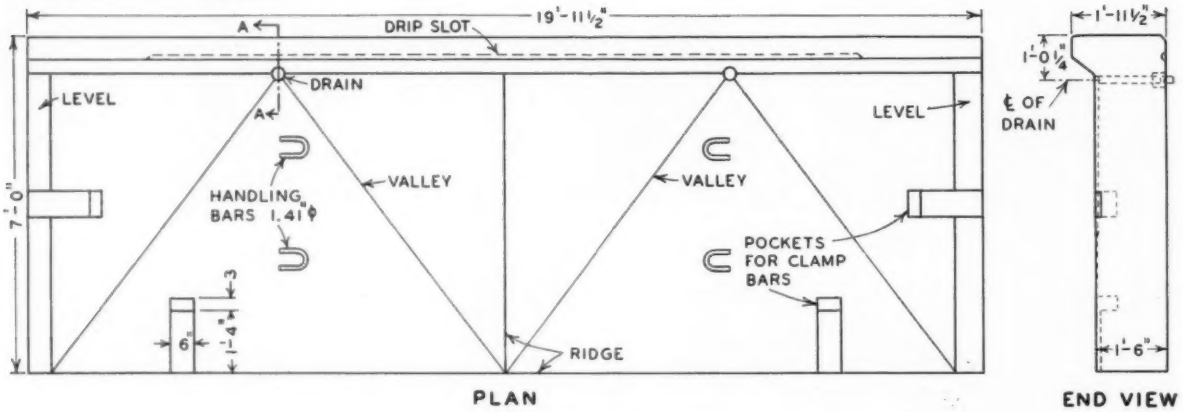
The idea for the construction of the prestressed concrete slabs used in the Burlington bridge stemmed from a series of load tests on full-size reinforced-concrete bridge slabs of various designs. These tests, which included both old and new slabs, were carried out by the research staff of the AAR at the request of Committee 8, Masonry, and Committee 30, Impact and Bridge Stresses, of the AREA. These committees collaborated in initiating an investigation of the relation between load and stress up to the ultimate carrying capacity in reinforced-concrete bridge slabs. In this investigation a number of full-size bridge slabs were tested to destruction. These tests included:

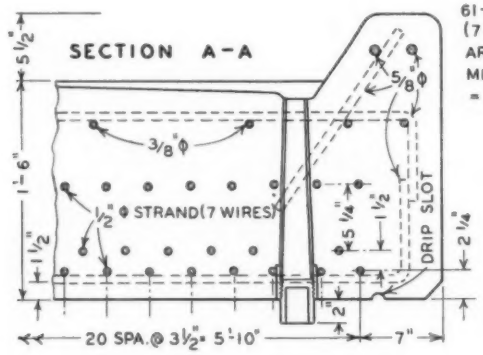
(1) Two slabs over 40 years old removed from a bridge on the Burlington because of considerable deterioration.
(2) A newly constructed slab designed in accordance with the current AREA specifications.
(3) Two newly constructed slabs designed according to the ultimate-load theory.
(4) A newly constructed slab which had been prestressed by pretensioning the reinforcement and designed according to current recommended practice.

A progress report on the results of this investigation is contained in a paper entitled "Tests of Full-Size Reinforced Concrete Bridge Slabs" published in the 1954 Proceedings of the AREA, Vol. 55, pages 462-465, and in a commentary by G. M. Magee, director of engineering research, Engineering Division, AAR. reported on pages 1010-1014 of the same volume. It is anticipated that a final report on these tests will be issued after all of the data taken, including sonic modulus tests taken by the Portland Cement Association, have been analyzed.

Since the laboratory of the Bureau of Reclamation at Denver had the only available facilities capable of testing the specimens to destruction, the tests were carried out there. The test slabs designed according to the conventional and ultimate-load theories were cast at the Bureau laboratories, but since special equipment necessary for casting the prestressed slabs was not available there, an experienced precasting and prestressing firm—Prestressed Concrete of Colorado, Inc., Denver, Colo.—was commissioned to make the prestressed slabs.

Design of Slabs . . .





PRESTRESSED slabs used in field are modifications of slabs tested in laboratory. This was necessary to provide for deck drainage and ballast curbs. Small amount of mild-steel reinforcement was provided to take care of temperature and handling stresses.

Since conditions in the casting yard made it necessary to use reinforcing strands 65 ft long, and since the difference in the cost of constructing either one or three slabs was not large, it was decided to construct three slabs. This decision was made with the thought that if the slab tested in the laboratory performed satisfactorily, the other two slabs could be installed in a railroad bridge for a field test. Because the Burlington had cooperated in providing the 40-year-old slabs previously mentioned, that road was offered the two slabs, and was quick to accept them.

The prestressed slabs were designed under the direction of the research staff of the AAR to tentative specifications developed by the Committees on Prestressed Concrete of the American Society of Civil Engineers and the American Concrete Institute, using E-72 loading with full AREA impact. The calculated prestress in the steel was 144,000 psi. This was expected to produce 2,000 psi compressive prestress in the concrete at the bottom of the slabs. An allowance was made for 20 per cent loss of compressive prestress due to creep and shrinkage, which left a working compressive prestress of 1,600 psi at the bottom, with approximately no stress at the top of the slab.

All slabs were 18 in thick. The slab to be tested in the laboratory was constructed as a simple rectangular prism with its top and bottom surfaces flat and parallel. The two slabs to be installed in the field were modified to suit the requirements of the Burlington. This required that the span length be increased from 18 ft to 18 ft 9 in. center-to-center of bearings, which provided an over-all length of 19 ft 11½ in. Since the two slabs adjoin along the center line of the bridge to form a single-track span, a ballast curb 5½ in high was cast integrally along the outside edge of each slab. Provision for drainage was made by sloping the deck of each slab toward two drain-pipe outlets located one at each of the quarter points along the ballast curb.

Pockets were provided for clamping bars designed to prevent lateral or longitudinal movement of the slabs relative to each other after they had been set in place on the bridge. Each slab was also provided with four handling bars to which lifting hooks could be attached during handling. The principal reinforcing of all slabs consists of sixty-one 1-by-7 American Super Tens strands furnished by the American Steel & Wire Division of the United States Steel Corporation. These strands, ½ in in diameter, have a cross-sectional area of 0.15 sq in

WHAT IS PRESTRESSING?

When a concrete beam is subjected to the weight of a train or other external force, it will bend under the load. This bending tends to stretch the material at the bottom of the beam (putting it in tension) and to shorten the material at the top of the beam (putting it in compression).

Since concrete is strong in compression it can resist the stress at the top of the beam. However, being weak in tension, it cannot resist the stretching forces at the bottom of the beam. It is for this reason that steel reinforcing is introduced near the bottoms of concrete slabs or beams.

When a beam is prestressed, the steel reinforcing at the bottom of the beam is stretched before the concrete is poured. After the concrete has hardened, this stretching force is released with the result that the steel tends to return to its original unstressed condition. Because of the bond between the concrete and the steel, these stretching forces in the reinforcement are transformed into compressive forces in the concrete.

If a beam constructed in this way is loaded with a train or other external force, the stretching forces which are produced at the bottom of the beam are balanced by the compressive forces set up in the concrete as a result of prestressing.

. . . and Installation . . .

ZINC SHEET on mortar provided uniform bearing.

ONE SLAB was set by slings after handling bar broke in transit.

each and an ultimate strength of 240,000 psi.

The casting bed consisted of a concrete slab about 600 ft long. A shed located about the center of this bed housed the hydraulic stressing equipment and movable jacking frames. Short concrete walls extending each way laterally from the shed acted as abutments to hold the stressing equipment. Heavy concrete posts spaced at 20-ft intervals along both sides of the bed acted as abutments for supporting end frames that could be set up at a distance from the jacking frames dependent on the length of the strands, and thus provide anchorage for the fixed ends of the strands.

The work of casting the slabs proceeded in three stages as follows: (1) Forms were built and prepared and the prestressing strands were laid between the abutments; (2) the strands were stressed and the concrete poured; and (3) after the concrete had cured, the pretensioning strands were severed. A slight movement was evident as the strands were cut.

This indicated that the strands were attempting to assume their unstressed length and in so doing were transferring their prestressing force to the concrete. As further evidence that the concrete had taken full prestress, it was found that each slab had assumed a camber of about ¼ in. This agreed with that expected when the slabs were designed.

After completion, the two slabs destined for field service were stored until they were required for erection in the bridge at Hunnewell. A locomotive crane set the slabs into position. Uniform bearing for the slabs was provided by a ¾-in layer of mortar placed on the pile caps and covered by a zinc sheet $\frac{1}{32}$ in thick.

SLAB in place. Note step in bridge seat providing for greater thickness of adjacent slab. Bridgeman is painting edge of slab with cement grout.

After the slabs had been set the camber was checked before any weight other than the dead load was applied. The measurements showed that the camber was just under ¼ in or the same as that given the slabs when the prestressing force was transferred when the cables were cut.

Following the setting of the decks the ties and rails were placed and the ballast was installed.

It is expected that field tests on these prestressed slabs, when compared with similar tests on the 24-in thick conventionally designed slabs located adjacent to them, will provide much valuable information for future applications.

These tests will be made with SR4 strain gages 6 in long, which will be attached to the top and bottom surfaces of the slabs. They are expected to show the effect of actual live and impact loads under varying speeds.

Why Use Prestressing?

Advocates of prestressed concrete bridges say that this type of construction has these advantages: (1) Absence of tension cracks in the lower surface of the concrete resulting in longer life with minimum maintenance; (2) a thinner slab for equal strength, with increased headroom under the bridge; (3) a lighter slab, simplifying the erection problem.

The design and construction of the prestressed slabs and the tests at Denver were under the direction of G. M. Magee, director of engineering research, and E. J. Ruble, research engineer structures, AAR, Chicago.

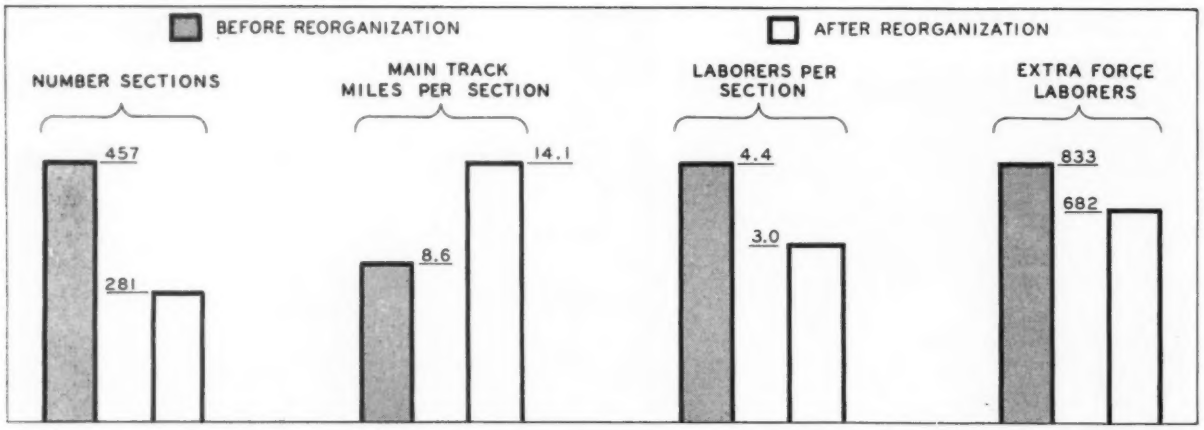


FIG. 1—Revision of the M/W set-up had striking effect on the sections and the number of section and extra-force laborers.

Reorganization, Programming

Stretch M/W Man-Hours on C&O

For many years the Committee on Economics of Railway Labor of the AREA has had a standing assignment to make analyses of operations on railways "that have substantially reduced the cost of labor required in maintenance-of-way work." For its latest report on this assignment, presented at the convention last month, the committee made a study of track-maintenance practices on the C&O. That report is reproduced on these pages. The charts are based on data given in tabular form in the report. J. E. Eisemann, district engineer, Gulf, Colorado & Santa Fe, was chairman of the reporting subcommittee.

• A reorganized system of track and roadway maintenance was placed in effect on the Chesapeake & Ohio several years ago. Not only were the roadway forces extensively reorganized but a system of programming and scheduling maintenance work in comprehensive detail was placed in effect.

During an inspection trip over a representative part of the C&O the Committee on Economics of Railway Labor was given an excellent opportunity to observe the property and to note the distribution of forces engaged in the work program. Statistical data were also made available for the use of the committee in evaluating the results of the new system.

The Chesapeake district is the area encompassed at the time programming and scheduling were initiated in their present comprehensive form. This area included the territory now known as the Southern region, as well as that part of the Northern region known as the Hocking division.

The Chesapeake district of the C&O is primarily a double-track railroad, with some short stretches of third and fourth track at points of highest traffic density. Apart from jointly operated tracks, it has 2,812 miles of road and a total trackage of 6,023 miles to maintain.

Effects of Reorganization

The 2,812 miles of road operated as the Chesapeake district are divided for maintenance purposes into 9 divisions. Fig. 1 indicates the comparative number and length of sections and the section and extra force personnel prior to and following the rearrangement as established for this district. It will be noted that sections were reduced from 457 to 281 in number, or 39 per cent, and that main-track mileage per section was increased from an average of 8.6 miles to 14.1 miles, or 64 per cent. In terms of personnel, there was an average of 2,844 trackmen, exclusive of supervision, required prior to the rearrangement, as compared with a total of 1,525 trackmen afterward, a reduction of 46 per cent. The bulk of this decrease (2,011 to 843) occurred in sectionmen. This amounted to a decrease of 58 per cent. For extra forces the average numbers were 833 and 682, respectively, a decrease of 18 per cent.

At about the time the present comprehensive system of programming and scheduling work was adopted, the C&O supplemented its labor-saving equipment by the addition of power units for tamping, jacking, gaging, tie drilling, ballast regulating, ballast cleaning, track cleaning, and bolt wrenching. The phrase "tie drilling" refers to the road's practice of drilling $\frac{9}{16}$-in holes for the application of spikes when laying new rail.

How System Works

Under the present system, which has been in effect since the fall of 1952, all heavy out-of-face maintenance work is performed by extra forces. Personnel, equipment and materials are allotted in accordance with the size and time schedule of the job, with due allowance for various factors affecting the work. The work of section forces consists mainly of spotting, opening drainage facilities, policing and miscellaneous.

Out-of-face track surfacing, with which most of the maintenance program is coordinated, is usually

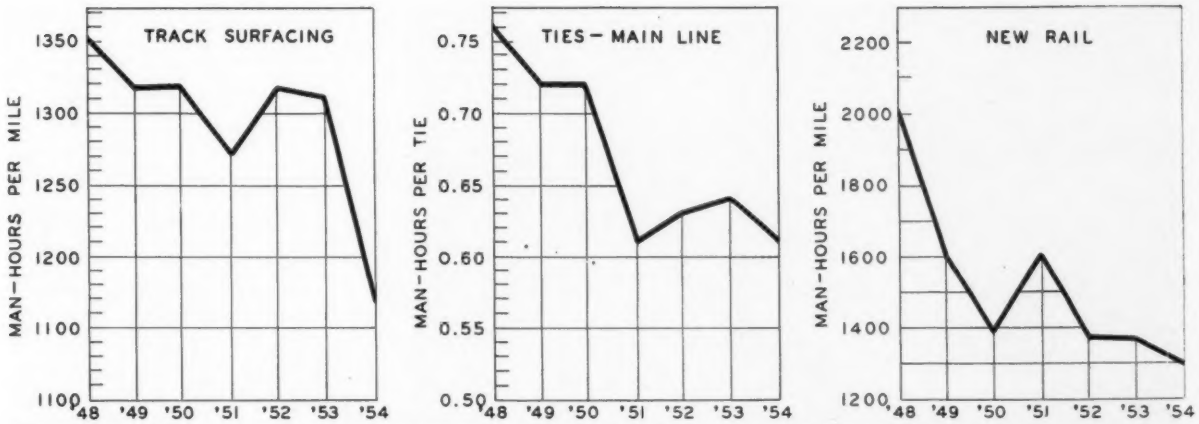


FIG. 2—Substantial reductions have occurred in the labor cost of surfacing track, renewing ties and laying new rail.

scheduled over a 7-month period beginning April 1. However, the laying of new rail, which is handled by a system force, may be performed at any time, except during the most severe winter period, as circumstances may indicate. The interval of the out-of-face track-surfacing cycle is from 3 to 5 years on practically all main lines. Ties are renewed at the time the track is surfaced, and the track lift averages 2 in. Traffic is detoured around the work to the extent practicable, and at some locations temporary crossovers have been installed for this purpose.

The entire track and roadway maintenance program for the following year is prepared in the early fall, complete in detail and on the most realistic basis. After approval, the program book is published and distributed to all having responsibility for executing the program. The work contemplated on each division is set up in the program book, loose pages from which are distributed on divisions to local supervisors, thus serving as work sheets. The program book covers in detail the mile-post limits to tenths of each individual lot (shortest segment of the project) of work, the time schedule of the work (beginning and ending dates) quantities and kinds of materials required, number and types of machines to be assigned, and, in some instances, the quantities and kinds of materials released.

Types of Work Covered

The program is rigidly followed and covers the full personnel of assigned forces, which are identified by code numbers. The types of work covered by the program include new rail laying; relay rail laying; turnout renewals; other track materials; main-track tie renewals; side-track tie renewals; switch-tie renewals; ballast allotments; track stabilization; tamping schedules; shoulder ballast cleaning with two off-track machines; shoulder and center-ditch ballast cleaning (under contract) by on-track machine; bolt tightening; track cleaning; and chemical weed and brush control.

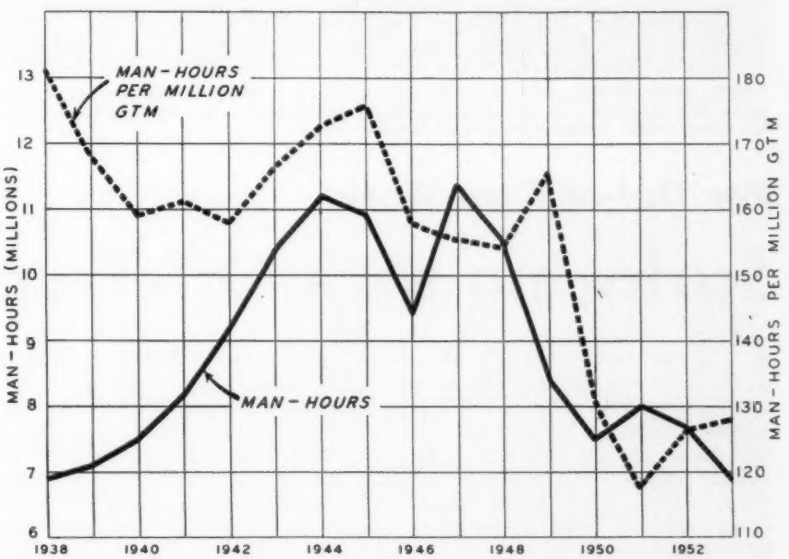


FIG. 3—Roadway and track labor in terms of man-hours and as related to traffic.

The original application of programming produced quite satisfactory results and justified the decision to expand the plan to the entire system.

Fig. 2 indicates the general decline in the cost of performing certain track-maintenance jobs in terms of man-hours per mile or per unit.

These are significant figures, because the value of any system of organizing forces is measured by the amount of work accomplished in terms of man-hours. Fig. 3 shows, over a 16-year period, the trend of man-hours of labor applied in roadway and track, both as a total figure and as related to gross ton-miles.

Conclusions

The Chesapeake & Ohio has been able to reduce the labor required in maintaining its track and roadway by:

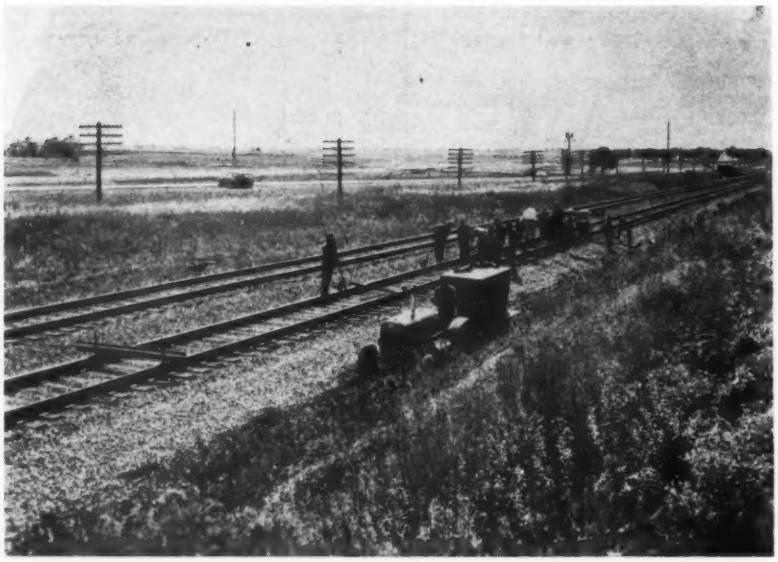
(1) Reorganizing its forces on a realistic basis

(2) Carefully planning and programming its operations.

(3) Intensive use of labor-saving machinery

(4) Efficient and constructive use of labor

(5) Detouring of traffic around work operations so far as practicable.



TWENTY-MAN GANGS, each equipped with a tractor-compressor unit and hand-held pneumatic tamping tools, are carrying out a surfacing program, out of face, on the IC's heavy-traffic double-track line in northern Illinois.

In surfacing track out of face on the busy double-track main line of its Illinois division, the Illinois Central is using wheel-mounted tractor-compressor units for operating hand-held tamping tools. Four 20-man gangs, each equipped with a tractor-compressor, were used in 1954. Cost of surfacing ran as low as 15 cents per track-foot.

For Out-of-Face Work

Surfacing with Off-Track Outfits

● Because of the heavy density of traffic on its double-track line between Kankakee, Ill., and Edgewood—a distance of 160 miles—the Illinois Central is using highly mobile off-track tamping equipment to carry out a heavy out-of-face surfacing program in that territory.

During the past year the road used four gangs each equipped with an 8-tool pneumatic tamping outfit powered by a 105-cfm tractor-compressor. Production per gang has averaged approximately 1100 ft per day, including lining and filling in behind the surfacing operations. Cost of labor for surfacing, including lining and filling in, but exclusive of tie renewals, has run as low as 15 cents per track-foot.

The use of such equipment on this territory was begun in April 1953. Two outfits were used during that year with such satisfactory results that two additional tractor-compressors were purchased for use in 1954.

Replace Less-Mobile Outfits

Prior to obtaining this equipment most of the out-of-face surfacing was performed with pneumatic tamping tools powered by other types of less-mobile compressor units. Some of the surfacing work on this territory was done also with on-track production-type tampers. However, because of the heavy traffic—20 trains per day in each direction on part of the territory and 26 each way on the remainder—there was some loss of productive time in clearing trains.

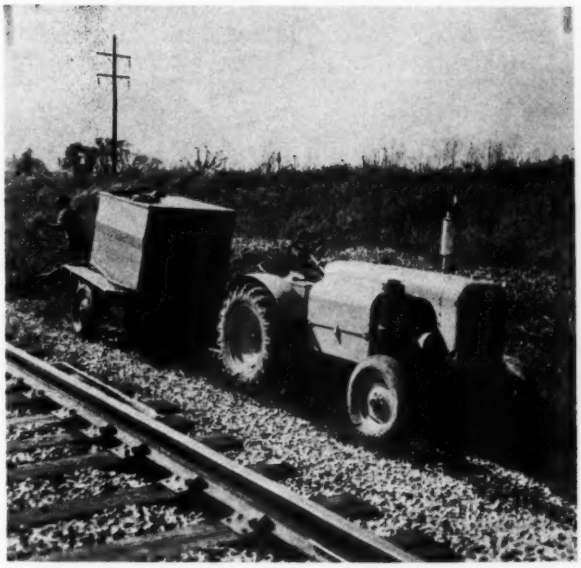
When using most types of the on-track equipment it has been the general practice to raise the track a minimum of 3 in. Using the individual tools, satisfactory tamping can be accomplished with a 1½-in raise, thus effecting a considerable saving in new ballast requirements. In addition, pilot train crews are required on certain types of the on-track equipment.

Out-of-face surfacing operations on the Kankakee-Edgewood territory are conducted on a three-year cycle. Furthermore, all track on which new rail is laid is surfaced immediately following completion of the rail laying. Prior to surfacing a section of track the ballast is cleaned under traffic by a railroad ballast-cleaning contractor. After surfacing, additional ballast is unloaded where necessary and equalized by means of a power machine.

The surfacing gangs each consist of a foreman, an assistant foreman and 20 men, more or less, depending upon the extent of the tie renewals being made. All ties which will not last at least a year are removed from the track as surfacing progresses. In years between the surfacing cycle, ties are renewed by section forces who dig them in.

In connection with the out-of-face surfacing work the ties are spaced to conform to the standard, rail anchors are adjusted and the spikes are driven down ahead of the surfacing. The usual practice is for each gang to use eight tamping tools. However, as an experiment, one of the gangs has been operated with 12 tools, in which case an additional compressor, mounted on two pneumatic tires and towed behind the tractor-compressor, was used.

The mobility of the tractor units permits them to move along the right of way near the track as the work progresses. When the work is shifted from one location to another the units frequently are moved along highways to the new site. Each machine has been equipped with a two-wheel enclosed trailer of railroad design which is used to store tamping tools, hoses, etc., overnight and to haul this equipment from one location to another when a move is



MOBILE 105-cfm tractor-compressor towing an equipment trailer is driven to within "hose-reach" of gang, thence it will move along as gang progresses.

TRAILER is specially designed to store tamping tools, hoses, etc., when gang is not working and to move the equipment from job to job.

made. One man in each gang is assigned to the operation of the tractor-compressor; he moves the machine when required and handles the air hoses which supply the tamping tools.

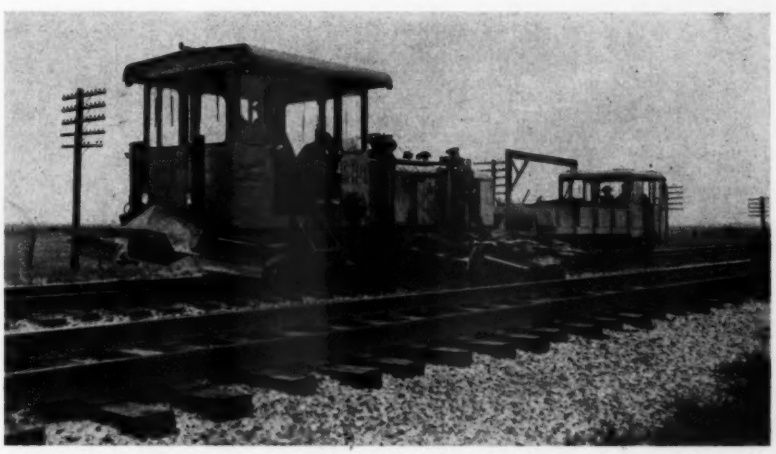
The surfacing crews are extra gangs and are housed in bunk cars located as conveniently as possible to the work location. Each gang has a truck which is equipped to carry the men to and from the job site.

Do Other Work in Winter

In the winter season when surfacing work cannot be performed, the tractor-compressors are sometimes diverted to other types of work where air power is useful. For instance, they can be used around road crossing-renewal projects for powering pneumatic borers, and on numerous other projects where pneumatic wrenches and other air-powered tools can be employed. The mobility of the tractor-compressor outfits enables them to move within "hose-reach" of nearly any point on the road.

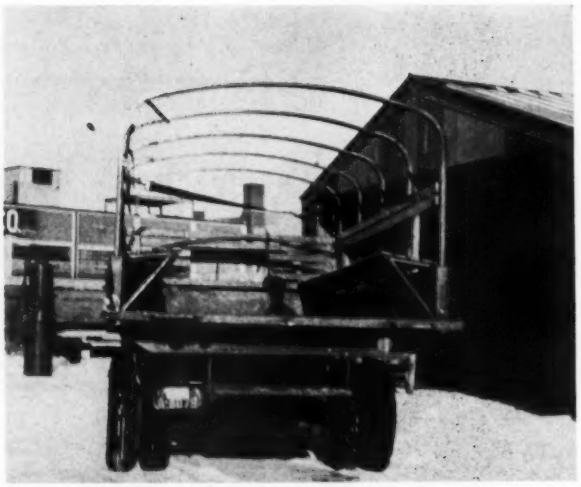
A valuable aid to the use of off-track equipment on the IC has been a long-range program of deep-ditching and shoulder building along portions of the line. Right-of-way ditches are being excavated and the excess material deposited along the track shoulders, thereby not only improving track drainage but also providing a roadway along the track for the use of off-track machines.

EXPERIMENTAL outfit, employing an additional trailer-mounted 60-cfm compressor towed behind the tractor, supplies air for 12 tamping tools.



BALLAST maintenance machine, following-up surfacing and ballasting operations, scarifies old ballast as necessary and equalizes the ballast section.

DUMP TRUCKS are of various makes and models; however, all are outfitted in essentially the same manner. Each truck is furnished with an . . .



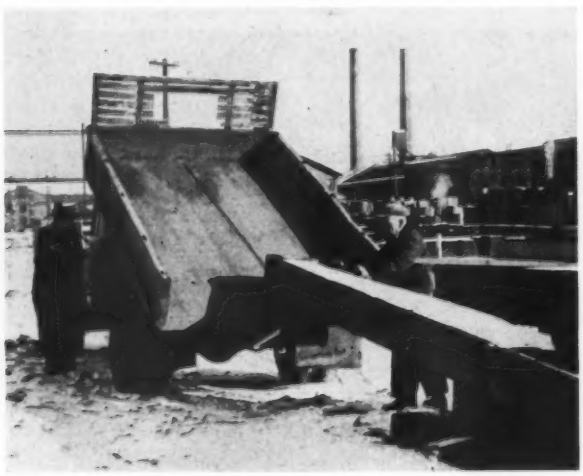
. . . ARMY-TYPE cargo body consisting of an 8-ft by 12-ft metal dump bed with removable stake sides, "troop seats" and metal and wood bows for a canvas top.

In Track and B & B Work . . .

Dump Trucks Carry a "Big Load"

HAND WINCHES are supplied on some trucks. Winch has high and low-speed gears and is used to load . . .

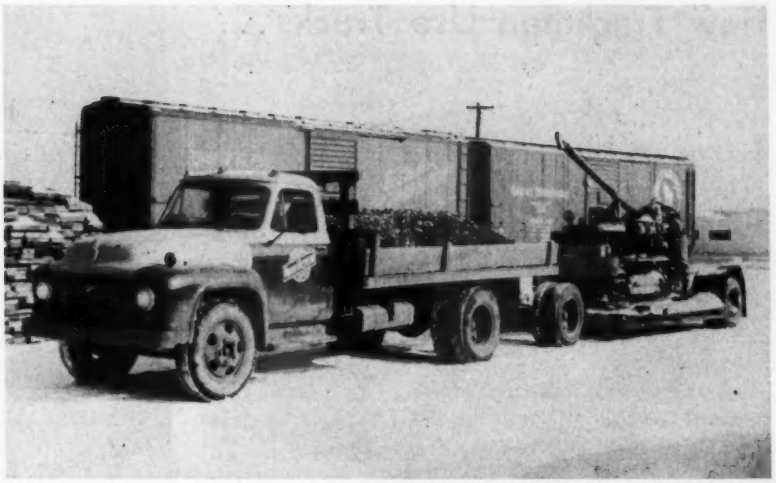
How B&B Gangs Use Them . . .



. . . HEAVY MATERIAL like this bridge cap. Bed is dumped and cap pulled up the inclined bed of truck.

BIG LOAD of lumber salvaged from a building project is hauled to material yard and unloaded in a matter of minutes.

Versatile mobile units used by Chicago & North Western's track-maintenance and bridge and building gangs are equipped to handle practically any kind of material, as well as to transport men. Some trucks have winches which, combined with an inclined dump bed, permit loading of even the heaviest of cargoes with a minimum labor force.



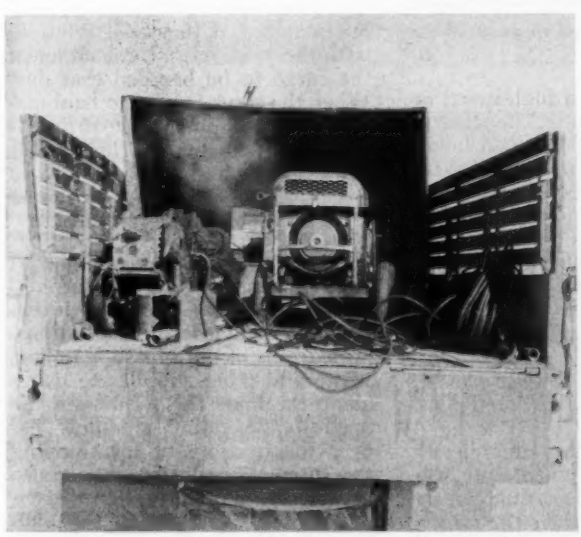
TOWING of trailers such as this heavy equipment outfit is a frequent job for the trucks. Dump-bed truck is particularly applicable since ballast material can be loaded to give better traction, then unloaded easily later on.

● "We do about anything and everything with them from transporting men to hauling frogs and towing trailers. They save us a great deal of time and a lot of back-breaking labor, too," says a Chicago & North Western gang foreman in discussing the dump trucks with which many of the road's track-maintenance and bridge and building gangs have been equipped.

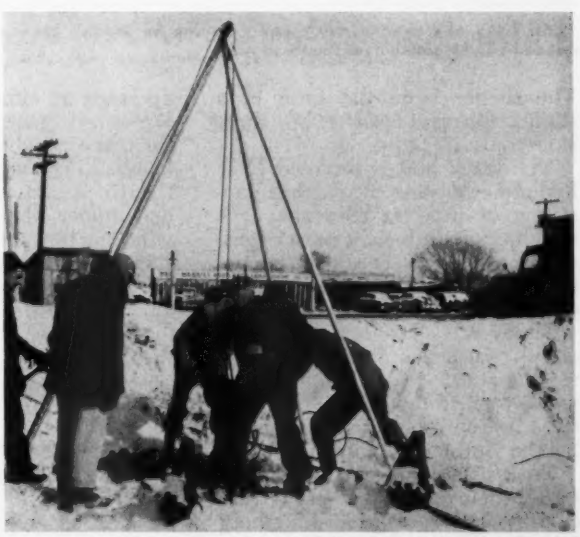
The North Western has 50 of these trucks assigned to territories of roadmasters and B&B supervisors over the system. The enthusiasm expressed above by one foreman seems to be shared generally by all supervisors and men who work with the trucks.

The vehicles are of various makes, and they are outfitted in essentially the same manner although the equipment may vary slightly from truck to truck. The trucks and auxiliary equipment are purchased from dealers as packaged units; each truck is delivered complete with all accessories, according to the railroad's specifications. The first units purchased were of a nominal capacity of 1½ tons. However, since it was found that these outfits were not heavy enough for many types of service, subsequent orders have specified 2-ton trucks which are reported to be giving satisfactory service at little additional expense.

Each of the trucks is fitted with what is known as an "army-type cargo" body. It consists of an 8-ft by 12-ft metal dump bed with sides about 18 in high. Removable stake sides extend up an additional 3 ft. Most of the bodies are equipped with metal and wood bows for a tarpaulin top which can be removed in a matter of a few minutes, when desired. Along both sides of the body are "troop" seats, each of which will accommodate eight men; the seats can be folded upwards against the sides when not in use. Occasionally, a bench is provided in the center for additional men. The trucks used by B&B gangs are usually left open on top with a shelter for riders provided at the front end of the body.



POWER equipment and tools used by B&B gangs are transported in the trucks. Here a generator supplies power for an . . .



. . . ELECTRIC boring rig which is being used to dig test holes on a track where a drainage problem has arisen.

How Trackmen Use Trucks . . .

TRANSPORTING men is one of the principal applications of the trucks. Side seats will accommodate 16 men.

LOADING a heavy frog is a comparatively simple job for three men when the inclined dump bed and hand winch are employed.

PUSH CARS and even heavy motor cars can be loaded, transported to point where needed and unloaded by a couple of men.

The shelter is in the form of a leanto, being enclosed on three sides only.

The truck bed is dumped by a hydraulic hoisting mechanism consisting of a 9-ton telescopic unit which operates from a power take-off on the truck. The hoist is controlled from the driver's seat in the cab.

There are two control levers, one for raising and one for lowering the bed. Part of the hoist units were supplied by the St. Paul Hoist & Body Co.; others were furnished by the Anthony Company.

To assist in loading heavy material, many of the trucks are equipped with a Meili-Blumberg Model 4W hand winch. These units are of 2,000-lb capacity and can be operated on either a high-speed or low-speed gear ratio, depending upon the weight of the load being handled. The winch is mounted on the truck chassis behind the cab and under the dump bed. The winch cable passes up through a sheave in the front lower corner of the bed, thence is pulled out along the bed far enough to reach the object which is being loaded onto the truck.

How Heavy Material Is Loaded

In using the winch to load heavy materials and equipment into the truck, the bed is first dumped to the desired angle, then the winch cable is attached to the object which is pulled up the inclined bed of the truck. The bed is then returned to the normal position and the load transported to destination. Upon arrival at the unloading point, the object is unloaded by raising the truck bed to the dump position. If the object is quite long, the truck can be driven out from under it.

Should the cargo be of a fragile nature, the winch can be employed to "ease" it down the inclined bed to the ground.

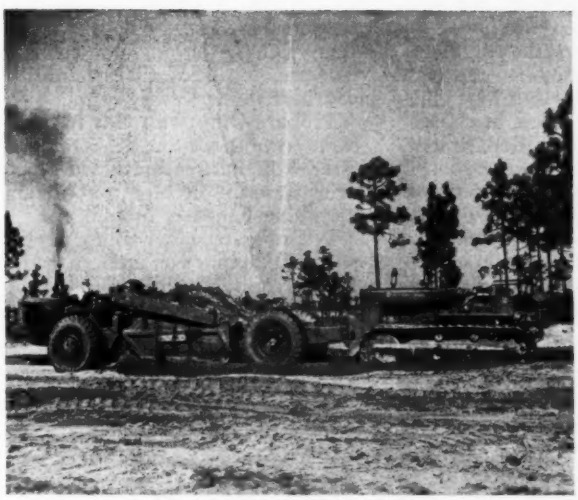
The trucks are used for a multitude of jobs. As a general rule, the truck takes the gang to the work site, where the canvas top and bows are removed if they will interfere with the loading and unloading of the cargo to be handled that day. When the truck is used to haul materials or equipment the driver is assigned a helper or helpers as needed.

Used In Lieu of Supply Cars

In addition to miscellaneous hauling jobs, some roadmasters and B&B supervisors use the trucks assigned to their territories to transport drums of oil, grease, gasoline, waste and other supplies to gangs along the line. This eliminates the need for operating a supply car over the territory or for shipping the supplies via lcl freight. It also permits the supplies, in most cases, to be delivered right to the toolhouse door, eliminating the need for extra handling.

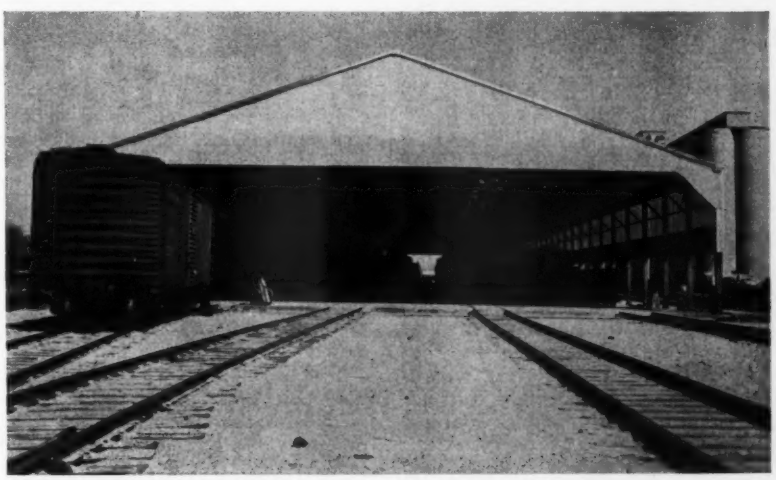
COTTON BELT'S new $1½-million general office building at Tyler, Tex., provides three acres of floor space. Building is entirely of brick and concrete construction with double-hung aluminum windows throughout. Two courts provide light for inner offices, and air-conditioning equipment keeps indoor temperatures at a comfortable point during all seasons. In addition to offices, the building contains an auditorium for 500 persons and kitchen facilities for large gatherings.

News Briefs in Pictures . . .



LIFT FORK on Caterpillar HT4 Traxcavator has been modified by Nickel Plate for use in removing old ties at its Madison, Ill., yards. Fork can handle up to 25 ties at time.

INTERNATIONAL 2T-55 high-speed earthmovers and TD-24 crawler tractors are being used to construct subgrade for 40 miles of track at the Army Corps of Engineer's new $23-million loading dump near Wilmington, N. C. Dump will have receiving, classification, holding and subject track yards. Barricades 16 ft high are being built on either side of spur tracks to keep rest of yard from blowing up in cases of explosion.



NEW SHELTER for rip tracks at the Frisco's Rosedale yards in Kansas City is a part of road's $2½-million rehabilitation program in progress at that terminal. Four tracks, each with a capacity of 10 cars, are covered by the shed. Concrete platforms extend the length of the building alongside each track. An outside track with a capacity of 8 cars is provided for overflow work.

WHAT'S THE ANSWER? . . .

. . . a forum on track, bridge, building and water service problems

Stocking Emergency Bridge Material

What factors determine the amount of emergency bridge material to be kept on hand to rebuild washed-out or burned-out timber bridges? Where should this material be stored? Who should be responsible for it? Explain.

Four Factors to Consider

By L. P. Drew
Assistant Chief Engineer,
Union Pacific, Omaha, Neb.

Some of the factors that should be given consideration in connection with determining the amount and location of emergency bridge materials which should be kept on hand to rebuild washed-out or burned-out timber bridges are:

(1) **Exposure.** This is determined by the total number of timber spans or bridges on the line to be protected, along with their size and relative importance.

(2) **Availability of materials from market sources.** A function of the distance from the area to the source of commercial timber supplies which could be quickly purchased and delivered to the site when needed.

(3) **Possible detours.** Bridges on lines from which trains may be readily detoured in case of emergency require less protection than those where detours are costly and involve serious delays.

(4) **Storage.** The emergency bridge material should be stored at a location where a regular, permanent force is available for loading on short notice. Switching service should also be available so that cars can be set into the storage area and, immediately following loading, be set into the train.

Considerable economy has been realized on the Union Pacific by carrying a complete five-span bridge with each of the roadway piledrivers. This material can be moved immediately to the site of the emergency. It will be there at the same time the piledriver arrives and will supply materials for the first 24 hrs of work, during which time additional materials can be started from more distance sources if necessary.

If the majority of bridges are small and of low height and are over small streams or dry washes, it has been proven most economical, with modern dirt-moving equipment, to fill the opening temporarily in order to restore traffic quickly. The new structure can then be driven through the temporary fill under normal operations. Usually a small culvert will protect against any local drainage.

Depending upon the organization on any particular railroad, stocks of emergency bridge material should be carried in the accounts of the stores department, but it should be the joint responsibility of the bridge-maintenance department and the stores department to see that these stocks are maintained at the amounts designated. It is also desirable that this material be replaced periodically, at intervals of approximately two years, in order to avoid deterioration.

Fire-Wall Spacing Determines

By G. W. Benson

Superintendent of Bridges,
Central of Georgia, Macon, Ga.

The principal factor governing the amount of emergency bridge material to be held available is the distance between fire walls in timber trestles. This is usually 400 ft. This amount of material will ordinarily protect against washouts although there may be special conditions which exist on some roads or in some localities that should be considered.

Probably, no two roads have the same conditions or the same answer. For that reason, I will give a brief description of our road and its timber handling practices.

We operate 1,764 miles of line with 15,429 miles of timber trestles. This is about evenly divided between ballast-deck and open-deck

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Answers to the following questions are solicited from readers. They should be addressed to the What's the Answer editor, Railway Track and Structures, 79 W. Monroe St., Chicago 3, and reach him at least five (5) weeks in advance of the publication date (the first of the month) of the issue in which they are to appear. An honorarium will be given for each published answer on the basis of its substance and length. Answers will appear with or without the name and title of the author, as may be requested. The editor will also welcome any questions which you may wish to have discussed.

To Be Answered In the July Issue

1. What are the relative advantages and disadvantages of sub-drainage systems and grouting for the stabilization of roadbeds? Under what conditions is one method more suitable than the other? Why? Explain.

2. What protection should be applied to multiple swinging doors in passenger stations to prevent their quick rebound and possible injury to patrons when they are opened quickly? Explain.

3. In heavily populated or congested territories, what are the best methods of reducing or eliminating the dust raised by the passage of high-speed trains? When should suitable preventive methods be undertaken? Explain.

4. How can the splitting of box-heart bridge ties be prevented? Will the insertion of dowels in both directions at both ends of such ties prevent splitting? Can this practice be justified? Explain.

5. When renewing rails in multiple-track territory, should the new rail and fastenings be unloaded in the intertrack space or on the shoulders? What factors affect the choice of either location? Why? Explain.

6. The introduction of diesel power on the railroads has resulted in the retirement of many water stations. To what extent is it economical or desirable to salvage the underground sections of the larger sizes of pipe at these abandoned facilities? Explain.

trestles. There is a further division between main line and branch line in each of these divisions. We do not attempt to carry sufficient stock to rebuild 400 ft of trestle in kind, but do carry sufficient materials to build 400 ft of trestle and restore traffic.

We have a timber-treating plant which is operated under lease at a central point. This plant is within 250 miles of any point located on our road.

The plant has diesel switch engines and diesel cranes. Approximately 50 per cent of its business is commercial and cars are readily available. Our bridge stock is held at this point and can be quickly loaded. Pile drivers are held in the same terminal and can move out with the first cars of the emergency materials.

Division repair requisitions are filled from this stock which provides a constant turnover and eliminates any chance of the stock getting old. Full fire protection is provided at this central point.

The chief engineer is responsible for ordinary repairs and emergency construction. The purchasing agent is responsible for inventory control. This means there must be close cooperation so that the proper amount of each size of material is available.

The stock is listed on cards and indexed by sizes. This is posted daily. Shipments and receipts are also posted daily and a summary is shown monthly. This is checked some time during the week and on first of each month by a representative of the engineering department.

This method of handling materials has proven entirely satisfactory to all concerned.

Tuck-Pointing Masonry Buildings

How often should a masonry building be tuck pointed? What factors should be taken into consideration when deciding on whether such work is necessary? Explain.

A Matter of Economics

By R. E. Lilliston
Architect, Kansas City Southern, Kansas City, Mo.

There is no definite formula that can be followed to pre-determine a schedule for this type of masonry treatment. The decision to give a certain section of masonry a restoration treatment is a matter of the individual structure. An exception are cases involving structural failure or the sudden inability of the masonry to withstand the elements. It is most often the case that the need for treatment is very apparent, thereby reducing to an economic question the matter of whether a program should be undertaken at the time the need is observed.

Complete tuck pointing, or masonry restoration, is at best an expensive operation when properly done. The need occurs most frequently in older structures. Careful weighing of long-range dollar benefits are therefore certainly justified.

Masonry is incorporated into a structure essentially for three reasons: (1) To withstand the elements; (2) for structural stability; (3) for appearance.

If the masonry performance is sub-standard when any one of the above reasons is applied, the time is at hand for a restoration program. Complete restoration involves raking all deteriorated mortar joints and then pointing, using a mortar containing an expanding admixture. In situations where appearance is paramount it is almost mandatory that all joints be handled in the same fashion at the same time. It is very difficult to achieve a match between new pointed joints and the original ones.

A maintenance-free masonry unit can be constructed but only by the application of good building procedures. This involves careful and rigid inspection of the work in progress in almost every case, but the added expense of the initial construction is justified. Concrete blocks with or without lightweight aggregate are a separate class of masonry and require special treatment to accomplish a maintenance free job.

Protecting "Turnout" Switch Points

What, if any, advantages may be derived by providing a guard rail to protect the "turnout" point of a high-speed switch? How should such protection be installed? Is there any other effective method of protection that may be used? Explain.

Uses Guard Rail

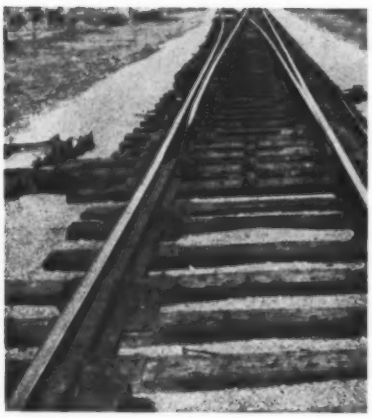
By A. F. Ewert
Division Engineer, Atchison, Topeka & Santa Fe, Arkansas City, Kan.

The high-speed switches referred to in this discussion are No. 20 turnouts, laid with 115-lb rail and having switch points 30-ft long. They have an equivalent curvature of 1 deg 31 min 16 sec. The maximum authorized speed of main-track trains is 90 mph and the maximum authorized speed of trains through the No. 20 turnout to the diverging track is 40 mph.

In CTC territory it is no longer necessary for trains to stop when heading into or out of a siding equipped with No. 20 turnouts. Facing-point movements into the siding are made at 40 mph. Entering a turnout at this speed causes considerable thrust and flange wear on the switch point. Reducing this wear on the switch point is essential, when it is considered that the material cost of a 30-ft 115-lb interlocked switch point is $198.95.

To reduce the mechanical wear on the No. 20 switch points in CTC territory we have placed a 14-ft guard rail ahead of the switch point. This guard rail has a 14-in planed flare at each end. The guard rail is installed as close as possible to the switch points. This arrangement makes it possible to guide the wheels through the guard-rail flangeway and prevent the flanges of the wheels on the side opposite the guard rail from striking the switch point until they have reached a point approximately 18 in from the actual point of switch.

The turnout illustrated was placed in service at the west end of the siding at Burnett, Okla., on February 19, 1954. The pictures were taken February 10, 1955. An average of four freight trains per day head into and out of this turn-



GUARD RAIL in advance of No. 20 turnout which is lined for siding.

SLIGHT WEAR on turnout switch point, 18 in from end of point.

out. Because of the protection afforded by the guard rail we estimate the life of the switch point has been increased as much as 30 per cent.

The guard-rail material cost $109.91 and will remain in place for the life of the running rail. In any event, the guard rail will pay for itself in three years because of reduced wear occurring on the switch point.

In cases where traffic is extremely heavy these guard rails would pay for themselves in less time.

In the CTC territory referred to there are 56 No. 20 power-operated turnout switches equipped with guard-rail type switch-point protectors. The first of these turnouts was installed April 16, 1953, the remainder were installed progressively until the entire territory covering 141.5 miles was completed April 21, 1954. To date not a single No. 20 switch point has been changed out due to wear at the point.

In years past we have had No. 20 turnouts of 110-lb rail with power-operated switches at the ends of double track. All trains in one direction would take the diverging route through the turnout. These turnouts were not protected by guard rails and it was necessary to change out the switch point on an average of once every 90 days.

Suggests Special Switch Point

By F. W. Creedle
Chief Engineer, Ramapo Ajax Division,
American Brake Shoe Company, Chicago

By definition, a "high-speed" switch would call for a switch point with a low switch angle, curved to a radius as close as possible to the radius of the closure curve of the turnout. On such a switch, the Samson-type point, with undercut stock rail, affords full protection for housing the point and minimum maintenance. Surface hardening or heat treating of the switch point and stock rail will further reduce maintenance costs.

Special guard rails ahead of the switch have been used principally at certain locations where conditions of curvature, etc., make it desirable to afford extra protection for the switch point. There is no serious objection to a special guard rail ahead of the switch if it is of sufficient length and properly maintained, although its desirability is questionable at ordinary locations on tangent track.

Guard Rail No Advantage

By K. von Kampen
Chief Engineer,
Pettibone Mulliken Corporation, Chicago

First I presume the "turnout" point means the point used by the wheels when the train is taking the turnout, rather than when proceeding along the straight or main track. In such a case, in a high-speed switch, I do not feel any advantages are derived by providing a guard rail to protect the turnout point. In fact I feel a distinct hazard is created. All the wheels on one side of every train are necessarily deflected by such a guard rail, with the consequent increased probability of broken or cracked flanges. As a matter of fact, proper protection cannot be provided because of inability to set the guard rail close enough to the switch point properly to hold the wheel away from the point.

A preferred method of reducing wear and the resultant accident potential would be to use a heat-treated turnout point or a manganese-tipped point rather than a guard rail.

Use in Extreme Cases Only

By J. E. Griffith
Assistant Chief Engineer,
Maintenance of Way and Structures,
Southern, Knoxville, Tenn.

Switch-point protection should not be provided for high-speed turnouts except in very extreme cases. The location requiring protection would involve factors of curvature, super-elevation and speed. I do not favor any of the present-day standard switch-point protectors for this type of turnout because it is my opinion that they increase the hazard.

It is my belief that the only safe type of protection in such cases is a long guard rail with a wide flare on the end farthest from the switch point. The gage between the guard rail and the running rail should be maintained to a point as close to the switch point as practicable. The flare at the switch-point end of the guard rail should be made as quickly as possible while at the same time avoiding an abrupt kink in the guard rail, which may cause "light" wheels to climb the guard rail during a trailing movement through the switch. It is very important that none of these details be overlooked in such an installation.

I am a firm believer in the use of Samson switch points with undercut stock rails.

"Double Stock" Stock Rail

By W. A. Schubert
Division Engineer,
St. Louis-San Francisco, Chaffe, Mo.

It is assumed that the question refers principally to turnouts leading off the high sides of curves.

Switch-point guard rails of standard turnout guard-rail design have been used in many cases, in advance of the facing point and on the opposite side, to protect the facing point from severe wheel contact, the flangeways of the guard rails being increased to correspond to a widened gage. This, however, is not very effective protection, since the design of the guard rail itself does not permit it to be placed close enough to the point, thus leaving a space with no protection at the point where it is

most desired. There is also interference to the placing of a switch-point guard rail due to the angle bars on rail joints within the limits of the guard-rail location.

It is my opinion that the best protection is afforded: First, by the use of manganese reinforced switch points; and, second, by use of the "double stock" on the stock rail. The writer has used this method of wear protection for a switch point.

The double stock is applied by bending the stock rail in the regular manner 9 in ahead of the point, permitting the newly made stock to cool off, and then placing a second bend 3 in ahead of the point in the opposite direction. This results in a niche being formed for the switch point which gives it good protection. It is very important that track and turnout be properly anchored and that the heel of point is bolted through the stock rail.

At locations in signal territory involving turnouts of high-speed design, I do not see any advantage in placing a guard rail on the opposite side and in advance of the point. Such a guard rail would have to be placed still farther away from the switch point due to interference of the signal installation. The manganese-reinforced switch point here would be the only additional improvement I can recommend in this regard.

Suspended or Supported Rail Joints?

What are the relative merits of supported and suspended rail joints for six-hole joint bars under 115-lb or heavier rail sections? Is it good practice to space ties uniformly without reference to the location of the joint? Why? Explain.

Favors Supported Joint

By G. M. O'Rourke
Assistant Engineer Maintenance of Way, Illinois Central, Chicago

We were surprised recently in connection with a study which we were making, when seeking published information concerning this subject, to find so little available material. This study revealed, however, that foreign practice was about evenly divided between the supported and suspended joint. With hardened rail ends, the possibility of rail-end batter with either type joint is remote.

The need for a supported joint is illustrated quite impressively in the maintenance of insulated joints, where the rail ends are held ⅝ in apart by the end post. We have observed many of these joints to be in anything but a thoroughly satisfactory condition. In almost every instance those on three ties (supported joints) were better than those on two ties (suspended joints) and were also better than those where the joint was neither supported nor suspended, but rested on ties regularly spaced with relation to each other, regardless of the joint location.

Near Covington, Tenn., following an epidemic of broken insulated joints, it was noted that rust marks on the bottom of a 36-in joint clearly showed that the center of the joint was suspended between two ties and not supported in accordance with standard practice. The severe stresses at the center of this joint during the passage of a train, together with weakness of the bars due to indentations, undoubtedly caused the joint to break. We suspect that this also applies to the breakage of other insulated joints.

There can be no question that the extraordinary load bearing down upon the rail-joint bars at the rail ends is relieved by the support of a good hardwood tie spaced equally under the ends of both rails. The supported joint, in holding the rail ends up, reduces gouging due to the railhead being pressed down on the joint bar too severely.

The supported joint reduces the up-and-down movement of the rail ends in the joint bars. As a result there is less fishing-surface wear and joint bolts are tighter for a longer time.

A survey of six of our division engineers shows a divergence of opinion with reference to this matter. Three of these men were in favor of the supported joint, one said such a joint was theoretically sound, one favors placing 24 ties per rail but takes no definite stand with reference to support of the joint bars, and one does not agree with either the idea of supporting the joint or with the spacing of ties to require 24 ties per 39-ft rail.

A letter from the assistant chief engineer of another railroad, in reply to an inquiry of mine, states that in connection with all of their new rail purchases for a number of years they have secured 6-hole joint bars. It is their standard practice to space three ties under the joint so that it is supported. It was further stated that in such a supported joint the tie spacing was closer than normal, but they had no trouble in tamping such joints with production machines, even with the closer spacing of the joints.

I believe that much money can be saved by insisting on supported joints on hardwood ties.

"Support-Spacing" No Benefit

By G. B. McClellen
General Roadmaster, Texas & Pacific, Fort Worth, Tex.

Six-hole joint bars of 30 in or more in length, on rail sections lighter than 100 lb per yd, should be supported by a full-size tie under the joint.

Rail sections of 100 lb and heavier, with the types of joint bars that are used, are sufficiently stiff to bridge the standard tie spacing practically as rigidly as an unbroken rail.

The somewhat negligible benefit to be derived from "support-spacing" would be more than offset by the several disadvantages inherent in any arrangement that entails a fixed tie spacing at all of the rail joints.

First, the smaller percentage of joints are located exactly opposite the rail centers. When this variation is less than the center-to-center distance of through spacing, the tie space must be shortened through one half-rail of the rail panel and lengthened through the other half panel.

It will be readily seen that, where the joints are, for instance, 9 in away from opposite centers and there are 12 ties in each panel of a 39-ft rail, there would be a difference of 1½ in in the spacing in the respective panels, and the interpolating of a tie in the long 39-ft panel would not improve this spacing.

Uniform spacing also permits the use of a long measuring pole for marking off the spaces quickly and without the possibility of error that is present in the use of a variety of different tie spacings throughout a given length of track.

Fracturing Detector-Car Rails

What are the advantages of fracturing rails classed by detector-car operators as containing transverse defects? If these rails are not fractured to identify the type of defect, what precaution should be taken to prevent such unfractured defective rails from being relaid in track? Explain.

Fracturing Rails Unwarranted

By R. A. Emerson
Chief Engineer, Canadian Pacific, Montreal, Que.

The wording of the question suggests the two principal reasons for breaking rails containing detected transverse defects. Identification of the type of defect may be desirable to establish whether it is: (1) A transverse fissure due to an internal defect such as shatter crack, hot torn steel or inclusion; or (2) a defect originating under a surface condition such as an engine burn, weld or rail shell.

Since the introduction of control cooling, the incidence of failures in the first category in rails manufactured by this process has been almost negligible.

With this in mind it is accordingly almost certain that a detected transverse defect in such rail will fall into the second category. The classification of a defect within the second category can probably be determined in most instances by visual examination which will disclose if, for example, an engine burn or similar external injury to the rail is present.

Insofar as detected transverse defects in non-control-cooled rail are concerned, since the manufacture of such rail is now obsolete, the classification of these defects is not usually important. The experience of individual roads may, in certain instances, make it desirable to fracture rails containing detected transverse defects in order to determine the importance of each type, if more than one type is prevalent.

As to the question of preventing defective rails from being relaid in track, it is doubtful if the breaking of such rails is the best precaution against this possibility. There is always the danger that some person may unwittingly cut a short rail from one of the severed portions of rail.

Alternatively, if a stripe of paint is applied to the web of the rail for its full length, that will serve as due notice to all concerned that no portion of the rail is fit for re-use in track.

One of the other drawbacks to the breaking of rails are the cost involved in making the fractures and in handling the separate pieces, and the reduced value of the scrap rail.

All things considered, I do not believe that the fracturing of all rails containing detected transverse defects is warranted under present-day conditions.

Breaking Entirely Educational

By Walter L. Young
Assistant Chief Engineer, Norfolk & Western, Roanoke, Va.

From our standpoint, the advantages of breaking such rails are primarily educational, both to railroad personnel and to detector-car operators. Breaking of rails containing transverse defects has been standard practice on our road for many years, the exception being rails containing engine-burn fractures, which are more or less obvious.

Full instructions are issued to the effect that all rails removed from track as a result of detector-car operation are to be stenciled "failed rail" in the web and forwarded to a central location. After these rails are accumulated, they are broken in the presence of railroad and detector-car personnel, who agree on the nature of the defect.

If there exists apparent defect, the rails are subjected to laboratory examination in an effort to determine the cause of the indications shown on the detector equipment.

After the rails are broken they are immediately disposed of in the form of scrap.

This procedure, we feel, is beneficial to our personnel by impressing on them the potential hazard of such rails remaining in track and to detector-car personnel by permitting them to correlate the true nature of the defect to the response by the detector equipment. It is also an incentive to keep operators on the car alert to the indications on the tape. Aside from these advantages of an educational nature, determination of the true cause of failure permits accurate records to be maintained for rail-failure statistics.

The breaking of rails is insurance that these rails will not be relaid in track. However, if they were not broken, proper identification such as stenciling "failed rail" on the web by division forces should, in my opinion, give the same result.

Records kept on the detector car indicate the total number of defective rails found. These should be accumulated at some central point and scrapped as soon as possible.

Fractures Treated Rails Only

By L. R. Lamport
Chief Engineer-Maintenance, Chicago & North Western, Chicago

Our policy in regard to fracturing rails, classed by detector-car operators as containing transverse defects, is to fracture only treated rails which are marked CC, CH, BN and N.

We feel the only advantage to be gained in fracturing rails is to classify them as containing transverse-fissure defects as distinguished from other transverse defects. It is not felt that this is of sufficient importance in ordinary rail to warrant the expense of assembling and fracturing the individual rails.

Some might feel that there is an advantage in fracturing rails to prevent them from being returned to track where they might fail under traffic. It has not been our experience that this presents any great problem.

To prevent rails being returned to track that have been classified by detector-car operators as containing transverse defects all rail so found are paint marked "SCRAP—TD," following which they are picked up and shipped to the general storekeeper as scrap.

Fracture All Detected Rails

By E. J. Brown
Chief Engineer, Chicago, Burlington & Quincy, Chicago

There always has been a divergence of opinion among maintenance men on this matter. This is understandable in that specific conditions on different railroads determine what policy shall be followed in this regard. There is no doubt that there are many advantages to be realized from fractur-

ing rails located by detector cars and classified by the detector-car operators as containing transverse defects.

Some advantages, as we see it, are as follows:

(1) To verify the presence of the transverse defect. Errors are made by the best of detector car operators and occasionally a rail is marked out for removal which did not contain a transverse defect. The fracturing of the rail will bring this error to light.

Positive proof of the existence of any transverse defects, and transverse fissures in particular, is of great importance to those railroads that follow the practice of condemning heats, which we do on our railroad.

(2) To determine the type of transverse defect. This bears directly on the point previously mentioned, but there are also other reasons for wanting to know the type of the transverse defect. The term "transverse defect" is exceedingly broad.

It does not give specific information as to the type, nor the reason why the defect developed. I think it is important to try to determine, as nearly as possible, why the defect developed.

Naturally, it is conceded that you can never be 100 per cent right in this regard on all transverse defects, but you will be far more correct than you would be if the rail was not fractured for thorough examination.

On our railroad we separate transverse defects into three classifications, namely, transverse fissures, compound fissures, and shelly fractures (detail fractures from shelling).

These three representative classifications are about the minimum that you can have. Where accurate information is desired, it becomes necessary to clarify these three classifications still further, such as transverse fissure due to shatter cracks or hot torn steel, or due to porosity or slag inclusion. All of this information is important when considering the overall picture of the development of the transverse defect.

None of this vital information can be obtained when rails are not fractured and classified after fracturing.

(3) To prevent the rails from being returned to track. When rails are fractured, and the faces of the transverse defects are exposed, it is ordinarily unlikely that these rails will again get back into the track.

I feel all rails with transverse defects in them, should be fractured and scrapped. Any rail that has developed one transverse defect is always capable of developing others. The condition that existed to cause the development of this one transverse defect can, and probably will, also exist at some other place in this same length of rail.

There is no way to guard against future development of defects in this rail if it is replaced in track.

(4) To aid in development of detector cars. The fracturing of rails with transverse defects in them aids materially in the progressive development of the detector cars.

Practically speaking, all of the detector cars today use multiple recording. Each of the separate detecting (recording) channels has specific capabilities. As it happens many times, a certain transverse defect that should seemingly be detected on a certain recording channel will not be detected by ear.

In many cases, when a particular rail is fractured, it is possible to explain this lack of detection. This information can, and generally does, lead to future development of the detector car.

As to what precautions should be taken to prevent unfractured defective rails from being relaid in track: This is an item that we do not need to be concerned with on our railroad because we fracture all defective rails at the point of the defect.

This particular procedure is one of the most positive precautionary measure that can be taken. If the rails are not fractured at the point of defect, it becomes necessary to mark these rails in a manner so that the marking cannot be mistaken or obliterated.

An effective method of defective rail marking we use of identifying suspicious and condemned heat rails could well be used. We drill two holes through the center of the web of the rail, at the center of the length of the rail, with a bonding drill.

These two identification holes are spaced about 4 to 6 in apart. They are approximately 5/16 in in diameter, an odd size for a drilled hole through the web of the rail, and they are easily recognized and cannot be obliterated by means which could be used, intentionally or accidentally, to remove other methods of identification.

Fracturing Prevents Reuse

By H. E. McCurdy
Quality Control Manager,
Sperry Rail Service, Danbury, Conn.

Probably the most significant advantage of breaking transverse defects is that it prevents such defective rails being used again in main-line track. Rail testing experience has shown that previously detected defects having barely discernible identifying marks will find their way back into track more often than may be normally anticipated.

Defects, especially transverse fissures, may occur at several locations in the same rail. Breaking all known defects in a given rail is a certain method of preventing any reuse.

A second important advantage results from being able to classify individual defects accurately as to their type and origin. Specific rail breaking data, gathered in 1946, demonstrated that it was not always possible to accurately differentiate between a TF, CF, or DF at the time of test. It was for this reason, following a meeting with a number of members of the Rail Committee, AREA, that in 1947, Sperry Rail Service adopted the general classification of "transverse defect."

This classification has subsequently been used in the identification of defects at the time of test and applies to transverse fissures, compound fissures, detail fractures and engine-burn fractures.

The accurate classification of defects by breaking has been invaluable in evaluating the benefits of special-process rails, such as control-cooled rail.

As an illustrative example, were it not for rail breaking and subsequent meticulous investigation of defect types in CC rail, the problem of the development of transverse fissures from hot torn steel would not have been promptly recognized and corrected. In addition, many other types of defects would have been incorrectly classed as tranverse fissures in CC rail had they not been carefully verified.

This would have led to a misleading evaluation of the control-cooling process.

Proper classification of defects sampled from many roads also provides a basis for research into defect origin, growth and development.

A comprehensive tabulation of the occurrence of various defects and their origin aids in a quanti-

tative analysis of any problem. An illustration would be the present investigation into the cause and prevention of detail fractures from shelly spots and head checks in the rail.

Educational benefits to various railroad personnel is a third advantage of fracturing defects. Participation in the classification of fractured defects provides training in the proper identification of specific defects in addition to providing a system-wide standard of defect classification.

The observation of the extreme ease with which most defective rails can be broken emphasizes the importance of careful removal of all defective rails from track upon detection.

Another advantage to the railroads which can be derived from the breaking of rails is the opportunity to confirm the accuracy of a detector car test, i.e., to make certain that internal defects are actually present at the locations marked defective. The need for such verification has been minimized in recent years, but obviously the removal of rails before defects develop defeats the purpose of rail testing which is to get maximum safe use from all rails in the track.

Although all railroads do not fracture all of their detected defects, some frequently fracture rails following tests where the number of defective rails detected is unusually high. This affords immediate assurance that testing is being conducted properly and that any change which might be contributing to increased number of defects will be immediately recognized and noted.

In addition to the above, certain advantages accrue to the detector-car service making the test, which indirectly benefits the railroads through improved methods of testing.

First, it provides a supplementary control of detector-car crew operations and performance. Secondly, the data accumulated from many programs are frequently useful in furthering equipment or procedure improvements. For these reasons the notification of any contemplated rail breaking program by a railroad is welcomed and appreciated by our organization.

The second question which was asked, pertaining to those transverse-defect rails which are not fractured, is the next logical consideration in the discussion of this topic.

Despite the usual normal precautions taken by all roads, unfractured defects will occasionally find their way back into track. We have observed that some railroads will drill the web of the rail at specified intervals at the locations of defects while others will paint the web to indicate defects.

Unfortunately, the significance of drilled holes is not always recognized and paint may become obscured.

An accepted method of permanently and conspicuously identifying *all* defective rails at the time they are removed from track is, nevertheless, very desirable. One other method which has been observed in the field is the use of a track chisel to stamp one or more "X's" across the running surface of the rail at the individual defect location.

While this procedure provides a permanent and conspicuous identification, it too has certain disadvantages. First, if the rail is to be used at a later date in yard track where rail supply is critical, nicking the surface is apt to hasten complete failure. Secondly, the use of a track chisel on the running surface may conceivably pose a safety problem.

However, rails which are to be fractured for verification of transverse defects should not be marked as recommended above, as the nicking of a rail in any way may later cause difficulty in fracturing such rails through the defect. The nicking of a rail containing a transverse defect too often causes the rail to break away from the defect, resulting in an inconclusive evaluation of the test results. This fact cannot be emphasized too strongly.

Experience has shown time and again that rails to be fractured should be nicked only after any other conventional method of breaking has been tried and has failed.

Summarizing, the fracturing of detected transverse defects has many advantages to the railroads which must be weighed against the expense and inconvenience of such a practice. A compromise might be to fracture rails whenever large increases in defect denfect conditions are surely known to exist.

All rails which are not fractured, regardless of the type of defect, should be permanently and conspicuously identified to prevent their being used again in other than yard service.

PRODUCTS
OF MANUFACTURERS

New, improved equipment, materials, devices

MAST-TYPE GANTRY

A NEW TYPE of gantry, known as a mast gantry and designed for use with its Model 6 cranes and draglines, has been announced by the Northwest Engineering Company, Chicago. The company reports that the new mast-type arrangement facilitates the lowering of the gantry for low clearances when traveling or shipping. The unit is furnished with section boom hoist rigging and pendent lines. The manufacturer states that the mast-type gantry is available for installation on Northwest Model 6 machines now in use in the field. It replaces the old standard or rearward-type gantry formerly used.

AC WELDERS

A NEW LINE of ac industrial welders, consisting of NEMA rated 300, 400, and 500-amp models, has

been announced by the General Electric Company's Welding Department, Schenectady, N. Y. The new units, designated 6WK3OL, 6WK4OL, and 6WK5OL, respectively, are available for 220/440 or 550-volt operation.

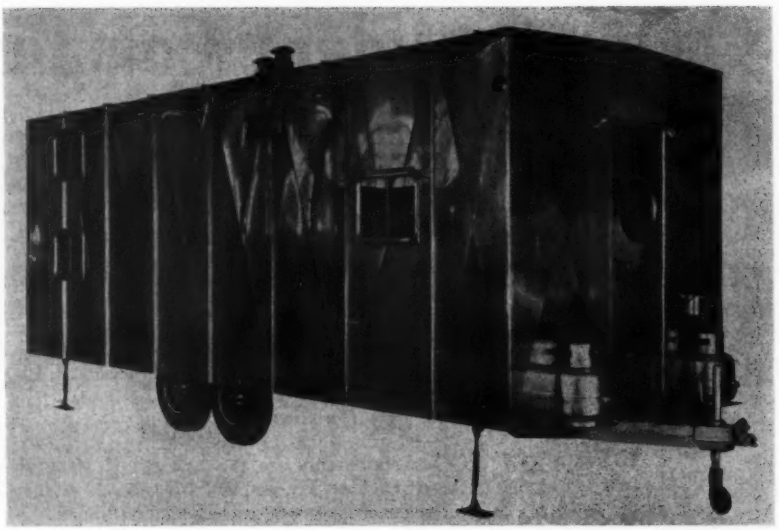
Features of the welders include stepless current control, silicone insulation, aluminum coil windings and a large current scale which the operator can read from a considerable distance. Coil supports float in a special rubber bushing, thus making fingertip current adjustment and quieter operation possible. Current adjustments are accomplished by raising and lowering the primary coil, and accurate coil setting may be obtained with this moving primary coil design combined with a large current scale which has wider calibration in the lower ranges. Additional features include an automatic hot start providing an extra surge of current for easier starting, arc-stabilizing capacitors, power-factor capacitors, primary switch and Idlematic control and louvre canopy for adaptation to outdoor applications.

NEW WEED KILLER

UREABOR is the name given to a new weed and grass killer developed specifically for industry and announced recently by the Pacific Coast Borax Company, Los Angeles. The chemical is a complex of sodium borates and 3-p-chlorophenyl 1-1, dimethylurea. The manufacturer states that no mixing or spraying equipment is required for applying Ureabor; it is applied dry just as it comes from the 50-lb multi-wall paper sacks in which it is shipped.

TRAILER FOR FIVE MEN

A SELF-CONTAINED highway trailer especially designed for a railroad crew of four men and a foreman has been made available by the International Equipment Division of the Morrison Railway Supply Corporation, Buffalo, N. Y. Known as the Campcar, the trailer provides four bunks at one end with storage drawers and shoe lockers under the bunks. At the other end is a dinette area which also can be used during the day for recreation and as an office. At night, the dinette converts into sleeping quarters for the foreman.

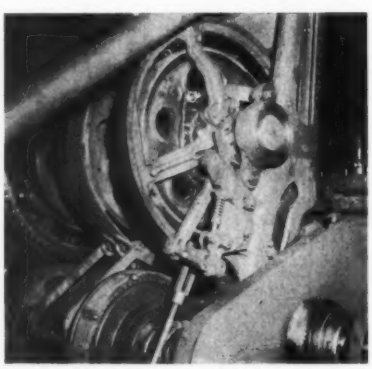


Seats provide storage for a foam-rubber mattress and bedding.

The five-man unit is equipped with a door at each end, a propane stove, a combination ice and electric refrigerator, a full-size sink and a separate wash basin, a 30-gal water heater, a space heater, a full-size stall shower with a 140-gal water-storage tank, clothing lockers, numerous cabinets and a dry chemical lavatory. So equipped, the Campcar is a self-contained unit which can operate at or away from city utilities.

In addition to the five-man unit, the manufacturer has developed four other types of especially designed railroad trailers.

They are: A dormitory outfit with upper and lower bunks, providing accommodations for up to eight men and complete with lockers, washroom, shower and toilet facilities; a single-unit complete kitchen; a dining and recreation unit to accommodate up to 22 men; a combination kitchen, dining and recreation unit for eight men. Used in various combinations, Campcars, reportedly, can handle traveling crews as few as two men and as many as 50 or more.



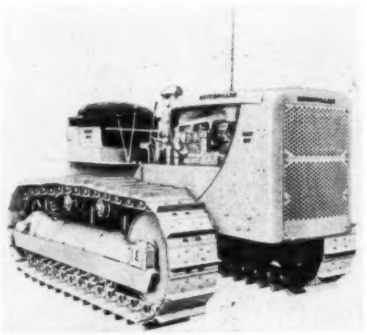
DISC-TYPE HOIST-CLUTCH

A NEW TYPE clutch for use on its Model 320, 322, 325 and 327 machines has been announced by Osgood-General, Marion, Ohio. The unit, known as the Easytouch disc-type servo brake-operated hoist clutch, is actuated through a brake friction plate which turns with the driver connecting it to the hoist drum. The manufacturer reports that this design allows the hoist-clutch to be engaged smoothly and

provides positive control of the hoist drums.

An optional combination of the disc-type servo hoist-clutch and a torque converter on the engine provides an unusual load-handling device.

With the hand or foot throttle, it is reported possible to hold a load safely in mid-air or "inch" it up or down. With this combination the driver is able to control the input speed of the converter, and matches its output power against the line pull. The torque converter and foot throttle are optional equipment on all models.



REDESIGNED TRACTOR

INCREASED horsepower and engine speed highlight many new engineering improvements which have been introduced in the new D7 track-type tractor announced by Caterpillar Tractor Company, Peoria, Ill.

The engine in this new tractor has 128 hp at 1,200 rpm compared to the 108 hp at 1,000 rpm in the previous model. The maximum drawbar pull for the D7 is now 28,700 lb giving it approximately 3,500 lb more pull than its predecessor.

Another important innovation designed to improve the new tractor's operation is an engine balancer which is said to reduce vibration and to permit the four-cylinder engine to operate at 1,200 rpm with the same corresponding degree of smoothness as a six-cylinder engine design.

Other new major engineering features which are reported to contribute to greater productive capacity in the new Caterpillar D7 include: Redesigned engine block; fuel injection system; a new starting engine; new radiator; larger fuel tank; new fuel filter system; redesigned oil filter base adapter; and, improved air cleaner.

The Month's News

Railway Personnel

General

A. E. Street, assistant transportation engineer on the Canadian National at Montreal, Que., and an engineer through training and experience, has been promoted to transportation engineer at that same point.

R. F. Dunlap, assistant trainmaster on the Norfolk & Western, and an engineer through training and experience, has been promoted to trainmaster on the Western Scioto division with headquarters at Portsmouth, Ohio. **R. W. Clifton, Jr.,** general yardmaster at Wilcoe, W. Va., and also an engineer through training and experience, succeeds Mr. Dunlap as assistant trainmaster at Williamson, W. Va. **W. S. Clement,** assistant trainmaster at Portsmouth and an engineer through training and experience, has been promoted to trainmaster on the Pocahontas division with headquarters at Bluefield, W. Va.

E. E. Mayo, chief engineer of the Pacific Lines of the Southern Pacific, has been appointed vice president of the newly formed Southern Pacific Pipe Lines, Inc., a subsidiary of the SP.

Mr. Mayo, a graduate in civil engineering from the University of Oregon, began his railroad engineering career in 1907 with the Pacific Railway & Navigation Co., now part of the Southern Pacific. He subsequently held engineering assignments with the SP at Hillsboro, Ore., and Portland, Ogden, Utah, San Francisco, Sacramento and in Mexico. He directed construction of the railroad's double track over the Sierra Nevada Mountains and was construction consultant of the old SP Railroad of Mexico. Mr. Mayo has been chief engineer of the Pacific Lines since 1944.

E. E. Mayo

John P. Hiltz, Jr., who has been named general manager of the Delaware

& Hudson (*RT&S*, March, pg. 101), was born at Baltimore, Md., on September 8, 1911. He attended Baltimore Polytechnic Institute and the Carnegie Institute of Technology, receiving a BS degree in civil engineering from the latter in 1934. Entering railroad service with the Pennsylvania on June 15, 1934, as an assist-

John P. Hiltz, Jr.

ant on the engineer corps, he subsequently served that road as assistant in the office of the comptroller and in the real estate department, and as assistant supervisor of track and supervisor of track on the Long Island at Jamaica, N. Y. In March 1945 Mr. Hiltz went with the Lackawanna as engineer of track at Scranton, and in March 1948 was advanced to the position of engineer maintenance of way.

He joined the New York Central in February 1953 as chief engineer maintenance of way, which position he held until his recent appointment.

Engineering

A. M. Schofield, division engineer on the Pennsylvania at Chicago, has been transferred to Pittsburgh, Pa., succeeding **W. N. Myers. A. F. Barr,** division engineer at Cincinnati, Ohio, has been transferred to Chicago to replace Mr. Schofield, and **J. M. Kirschner,** assistant division engineer at Baltimore, Md., has been promoted to division engineer at Cincinnati, replacing Mr. Barr. **W. B. Knight,** supervisor of track at Dennison, Ohio, has been promoted to assistant division engineer at Baltimore to replace Mr. Kirschner.

N. W. Kopp, division engineer on the Mississippi division of the Illinois Central at Jackson, Tenn., has been appointed principal assistant engineer at Chicago, succeeding **H. D. Walker,** who has retired. **C. E. Weller,** division engineer at Chicago, replaces Mr. Kopp at Jackson, and **J. H. Megee,** division engineer at Memphis, Tenn., has been transferred to Chicago replacing Mr. Weller. **N. R. Forbes,** assistant to division engineer at Memphis, has been promoted to division engineer at that same point, succeeding Mr. Megee, and **H. F. Davenport,** supervisor of track on the Mississippi division, replaces Mr. Forbes as assistant to division engineer at Memphis.

C. V. Schutt, assistant engineer in the district engineer's office on the Northern Pacific at St. Paul, Minn., has been promoted to division engineer on the St. Paul division with headquarters at St. Paul, succeeding **F. B. Darling,** who has retired because of ill health. **D. F. Bartley,** instrumentman at Billings, Mont., has been appointed assistant engineer at St. Paul, replacing Mr. Schutt.

Mr. Schutt was born at Duluth, Minn., April 30, 1915. He attended North Dakota Agricultural College, and began work with the NP in the engineering department at Fargo, N. D., in April 1937. He later served at Duluth and Glendive, Mont., until being appointed engineering inspector at Billings in 1947. He returned to Duluth in 1949 and was made assistant engineer at St. Paul in March 1953.

W. M. Jaekle, assistant chief engineer on the Pacific Lines of the Southern Pacific at San Francisco, has been promoted to chief engineer, Pacific Lines, with headquarters at that same point, succeeding **E. E. Mayo** whose appointment as vice president of the Southern Pacific Pipe Lines, Inc., is noted elsewhere in these columns. **R. C. Nissen,** assistant to chief engineer has been promoted to assistant chief engineer, succeeding Mr. Jaekle, and **J. A. Holmes,** construction engineer, has been named assistant to chief engineer, replacing Mr. Nissen. **D. K. McNear,** assistant division engineer, becomes construction engineer at San Francisco.

Mr. Jaekle joined the SP in 1934 as a rodman after receiving a civil engineering degree from Stanford University. In 1943 he became division engineer of the

W. M. Jaekle

Rio Grande division, later holding that same position on the Coast division. In 1948 he became construction engineer for line changes in Oregon caused by the building of Meridian Dam. He was named assistant engineer, maintenance of way and structures in 1951 and became assistant chief engineer in 1953.

Foster R. Spofford, engineer maintenance of way on the Boston & Maine, has been promoted to assistant chief engineer at Boston, Mass., succeeding **H. C. Archibald,** who has retired after 40 years of service. **Harold S. Ashley,** assistant to chief engineer, succeeds Mr. Spofford as engineer maintenance of way, also at Boston. **Robert F. Garner,** division engineer at Greenfield, Mass., has been named assistant to chief engineer in place of Mr. Ashley. **Donald S. Denio,** assistant division engineer at Greenfield, has been promoted to division engineer at that same point replacing Mr. Garner, and **William E. Kiley,** track supervisor at Concord, Mass., succeeds Mr. Denio as assistant division engineer at Greenfield.

A photograph of Mr. Spofford and a sketch of his railroad career appeared in the October 1954 issue of *Railway Track & Structures* on the occasion of his appointment as engineer maintenance of way.

Mr. Archibald, who was named chief engineer in July 1952, was born July 26, 1891, at Everett, Mass. Upon graduation from Tufts College in June 1915, he en-

H. C. Archibald

tered the service of the B&M as a structural draftsman. He subsequently served as supervisor of bridges and buildings, assistant division engineer, division engineer, engineer of track, and assistant to the chief engineer before his appointment as assistant chief engineer.

A photograph of Mr. Ashley and a sketch of his railroad career appeared in the November 1954 issue of *Railway Track & Structures* on the occasion of his promotion as assistant to chief engineer.

A sketch of Mr. Garner's railroad career appeared in last month's issue of *Railway Track & Structures* on the occasion of his promotion to division engineer at Greenfield.

W. T. Alexander, Jr., superintendent on the Eastern division of the Texas & Pacific at Ft. Worth, Tex., has been named to the newly created position of assistant chief engineer-system on the New York Central, with headquarters at New York. **Ralph R. Smith,** assistant chief engineer maintenance of way-system, has been appointed to the newly created position of engineer maintenance of way-system, with headquarters at New York. The title of chief engineer maintenance of way, formerly held by **J. P.**

ACL's Modernization Near Maco Speeded by INTERNATIONALS

AT FIRST GLANCE this ACL diesel engine appears to be running through a plowed field. But it is just the mud the 41 hp. INTERNATIONAL TD-9 diesel has dozed up from a swampy ditch to widen the roadbed and berms.

Three IH crawlers teamed with dragline to widen roadbed and berms, improve ditching in swampy North Carolina stretch

The Atlantic Coast Line's roadbed improvement program wasn't delayed a moment when swampy trackside conditions and low-hanging telegraph wires were encountered near Maco, North Carolina.

Three INTERNATIONAL crawlers and a dragline provided the power that made the roadbed and ditching improvements. Two TD-18A crawlers with dozer and scraper handled the bulk of the ditching and shoulder work. And an INTERNATIONAL TD-9 crawler moved plenty of paydirt as it teamed up with a dragline and scooted under the low-hanging telegraph wires to build up the roadbed and berms.

The INTERNATIONAL off-track power line is broad in size, broad in benefits. You can find the right-sized power tool you need to do one or half a dozen jobs among the eight INTERNATIONAL crawlers, each available with a complete line of matched equipment. Check the specs, the price and the performance and you'll have three big reasons why INTERNATIONALS are your best, long-term power investment.

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

LOW-HANGING WIRES prevent dragline from casting spoil close enough to tracks so IH TD-9 teams up to speed roadbed rebuilding work. Two INTERNATIONAL TD-18As with dozer and scraper worked the higher ground to cut drainage slopes and construct 15-foot shoulder on each side of tracks.

INTERNATIONAL HARVESTER

INTERNATIONAL INDUSTRIAL POWER

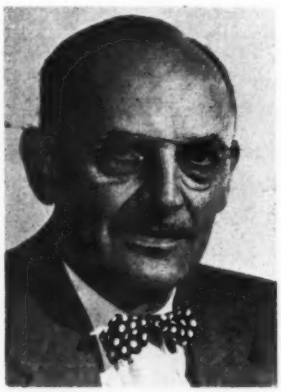
MAKES EVERY LOAD A PAYLOAD

Railway Personnel (Cont'd)

Hiltz, Jr., whose resignation to join the Delaware & Hudson was announced in the March issue, has been abolished. **W. G. Cowie,** division engineer on the River division, has been appointed division engineer, special assignment, with headquarters at New York, and the position of division engineer, River division, has been abolished. **W. R. Benish,** has been appointed assistant division engineer, Pennsylvania division, with headquarters at Jersey Shore, Pa.

Mr. Alexander, a graduate of Wright Institute, began his railroad career as a junior instrumentman with the Missouri Pacific at Houston, Tex., in 1924. Between 1925 and 1942 he served successively as a transitman, assistant engineer, office engineer to the chief engineer and principal assistant engineer. He joined the T&P as assistant chief engineer at Dallas in 1942. Since 1948, Mr. Alexander has served as superintendent of the Western division with headquarters at Big Spring, Tex., and, latterly, in this same capacity on the Eastern division at Ft. Worth.

W. T. Alexander



Ralph R. Smith

Mr. Smith, a native of Buffalo, N. Y., joined the NYC as a chairman in 1920. Following promotions to assistant supervisor of track and supervisor of track, he was named division engineer at Jersey Shore, Pa., in 1940. He was appointed assistant district engineer at Cleveland in 1944, and in 1953 became assistant engineer maintenance of way at that same point. Later that same year he was promoted to assistant chief engineer maintenance of way at New York City.

Kenneth E. Dunn, assistant engineer maintenance of way, Lines West of Buffalo, with headquarters at Cleveland, Ohio, has been appointed assistant engineer, maintenance of way-system, at New York. **John H. Kelly,** assistant chief engineer, maintenance of way, has been named assistant engineer, maintenance of way-system, with headquarters as before at New York, and the position of assistant chief engineer, maintenance of way, has been abolished. **Lyle Bristow,** division engineer on the Big Four at Springfield, Ohio, has been appointed assistant engineer maintenance of way, Lines West of Buffalo, with headquarters at Cleveland, to succeed Mr. Dunn.

C. R. Uitts, assistant engineer on the Pennsylvania at Philadelphia, has been promoted to assistant to chief engineer, Eastern region, with the same headquarters. Mr. Uitts' promotion was announced in the March issue; however, the announcement was incorrect in that it stated his promotion was to chief engineer, Eastern region, instead of assistant to chief engineer.

Abram Clark, assistant engineer of bridges and buildings on the Baltimore & Ohio at Baltimore, Md., has been promoted to engineer of bridges and buildings at that same point, succeeding **Charles E. Sloan,** who has retired.

Mr. Clark was born in Gloversville, N. Y., and received a BS degree in civil engineering from Union College in 1921. He joined the engineering department of the B&O two years later, and in 1940 he was appointed designing engineer in the bridge department. In October 1952 Mr. Clark was appointed as assistant engineer of bridges and buildings.

Abram Clark

Mr. Sloan was born in Lewisville, Ohio, February 7, 1885. He received a BS degree in civil engineering from West Virginia University in 1933, a BS degree from Johns Hopkins University in 1937 and a degree in civil engineering (professional) from West Virginia University in 1938. He began his railroad career as

Railway Personnel (Cont'd)

a draftsman with the Buckhannon & Northern in 1911. He joined the engineering department of the B&O as a draftsman in January 1913, and after advancing through various positions in that department, was promoted to chief

Charles E. Sloan

bridge draftsman in August 1918. Five years later he became assistant engineer of bridges, and in 1940 he was appointed to the position of engineer of bridges for the B&O system.

Mr. Sloan was named engineer of bridges and buildings in 1952.

H. J. Fast, engineer maintenance of way, on the Canadian National at Toronto, Ont., has been advanced to assistant to the chief engineer at Montreal, Que. **D. W. Blair,** district engineer at Toronto, has been promoted to engineer maintenance of way, succeeding Mr. Fast. **W. B. Jackson,** division engineer at London, Ont., has been named district engineer at Toronto, replacing Mr. Blair.

Mr. Fast began his railroad career in the CNR colonization and agriculture department at London, Eng., in 1938. He came to Canada the following year and

H. J. Fast

in 1941 transferred to the engineering department at St. Thomas, Ont. He served successively at London, Ont., Hornepayne and North Bay, until being appointed engineer maintenance of way at Toronto in 1951.

Mr. Blair, a native of Quebec City, joined the research and development department of the CNR at Levis in 1948. Later that same year he was appointed engineer for the Laurentian division, and in 1950 moved to Montreal as division

D. W. Blair

engineer on the Montreal Terminal. He was appointed district engineer at Toronto in 1953.

F. D. Day, whose promotion to assistant engineer in the office of the chief engineer of the Pennsylvania at Chicago was announced recently (*RT&S*, March, pg. 102) was born in New York, December 30, 1915. He received a BS degree in civil engineering from the Polytechnic Institute of Brooklyn in 1943, and began his railroad service with the PRR in January 1941 as a rodman at New York. In December 1943 he was appointed levelman on grade crossing elimination projects, later serving as junior engineer in the New York Division B&B department.

He was appointed assistant supervisor of structures on the New York division in August 1945, and was advanced to supervisor of structures on the Monongahela division in January 1949. He later served in this same capacity on the Chicago and New York division.

Walter A. Hansen, chief clerk-engineering department on the Rio Grande, at Denver, Colo., has been appointed assistant to chief engineer at that same point.

R. W. Bailey, supervisor scales and work equipment on the Chicago & North Western at Chicago, has been named acting division engineer on the Wisconsin division with headquarters at Chicago, succeeding **J. L. Perrier,** who has been temporarily assigned to other duties.

Bert C. Smart, whose promotion to assistant chief engineer on the Detroit, Toledo & Ironton at Dearborn, Mich., was announced recently (*RT&S*, March, pg. 101), was born at Waukesha, Wis., July 10, 1893. He began his railroad service in 1911 as a rodman on the Milwaukee's Superior division. From 1917 to 1919 Mr. Smart served with the U. S. Army Engineers in the North Russia ex-

Railway Personnel (Cont'd)

peditionary forces. Between 1920 and 1923 he was with the Detroit Edison Company at Detroit as a transitman. He

Bert C. Smart

began his service with the DT&I in April 1923 as a levelman at Bainbridge, Ohio. He was advanced to engineer of party in May 1924, and in April 1926 he was appointed resident engineer on a construction project.

He was named supervisor of track at Dearborn in November 1929, and in April 1953 was advanced to roadmaster at that same point.

C. J. Bonnevier, who has been appointed engineer of buildings on the Burlington at Chicago (*RT&S*, March, pg. 101), began his railroad service with the Burlington in 1939 in the department

C. J. Bonnevier

of buildings at Chicago. In 1947 he was named chief draftsman, and later that same year was appointed architectural engineer. For the past seven years Mr. Bonnevier has served as assistant engineer of buildings.

T. H. McKibben, assistant chief engineer on the Eastern Lines of the Santa Fe at Chicago, retired March 1 after more than 52 years of service. **George M. Strachan,** assistant engineer at Chicago, has also retired after more than 46 years of service.

B. J. Johnson, assistant division engineer on the Baltimore & Ohio at Baltimore, Md., has been promoted to division engineer at Cincinnati, Ohio, succeeding **J. T. Collinson,** who has been transferred to Akron, Ohio, to replace **Guy Long.** Mr. Long has retired after 39 years of service with the B&O.

R. P. Cox, whose promotion to assistant engineer of buildings on the Burlington at Chicago was announced recently (*RT&S,* March, pg. 101), began his career with the Burlington in 1926 as a

R. P. Cox

designer in the engineering department. In 1935 he was promoted to draftsman, becoming assistant engineer in 1944. He was appointed power plant engineer, the position he was holding at the time of his recent promotion, in 1947.

L. B. Cann, Jr., who has been promoted to division engineer on the Richmond, Fredericksburg & Potomac at Richmond, Va. (*RT&S,* Mar., pg. 101), was born at Richmond on January 19, 1920. He attended Virginia Military Institute where he received a BS degree in civil engineering in 1941. He began his railroad service with the RF&P in

L. B. Cann, Jr.

February 1947 as a senior engineering aide at the Potomac Yard, later serving in this same capacity at Richmond. In December 1949 he was appointed assistant supervisor, and in November 1950

(*Continued on page* 68)

Manufacturers' Literature

Following is a compilation of free literature, pamphlets and data sheets offered by manufacturers to the railroad industry. Circle the number(s) on the coupon below to receive the desired information; the requests will be sent direct by the manufacturers.

1. TRACK LINER. *Railway Maintenance Corp.* 4-page bulletin (L-55) describes, gives on-the-job photos, and lists specifications for the RMC Line Master which lines "over 6,000 feet of track a day."

2. WELDING SUPPLIES. *Air Reduction Co.* 36-page 2-color catalog (ADC 848) covers the complete Air Reduction line of arcwelding and oxyacetylene welding supplies and accessories.

3. PLYWOOD. *Douglas Fir Plywood Assoc.* Publication "Plywood Gets The Highball" (52-150) outlines uses of fir plywood in railroad construction; includes data on building and rebuilding rail cars with plywood, plywood in general car, station and fixture construction, and construction of refrigerator cars; lists names and addresses of manufacturers.

4. BRIDGE ACCESSORIES. *Western Railroad Supply Co.* 16-page illustrated catalog (954) "WRRS Navigation Aids and Accessories for Movable Bridges" gives complete data on WRRS traffic signal lights, bridge and pier lights, limit switches, custom-built gasoline or diesel engine power units, and electric warning bells.

5. TIE REPLACER. *Railway Maintenance Corp.* 4-page bulletin (T-55) gives complete data with specifications and on-the-job photos of the RMC Tie Master which "removes and replaces ties in one operation."

6. PORTABLE JACKS, *Whiting Corp.* 8-page 2-color profusely illustrated bulletin (PJC-403) "More Lift For Your Money" gives complete details on electric portable jacks for railroad repair shops; includes on-the-job photos in railroad yards and shops.

7. LUBRICATING OILS. *Caterpillar Tractor Co.* 16-page 2-color booklet (12440) "Let Your Diesel Live" contains the story of lubricating oils and how these oils affect the present owner or prospective purchaser of a Caterpillar Engine.

8. CRANE-EXCAVATOR. *Bucyrus-Erie Co.* 12-page 2-color bulletin (15-B-TC-1) describes and illustrates with on-the-job photos the Bucyrus-Erie 15-B Transit Crane with 15-ton rated capacity; 4-pages of detailed specifications included.

9. PORTABLE COMPRESSOR. *Le Roi Div. Westinghouse Air Brake Co.* 4-page bulletin (12540100 Q) illustrates and describes many features of the 85 cfm Le Roi Airmaster; includes specifications and cross section view diagram of this one unit portable engine-compressor.

10. TRACK-TYPE TRACTOR. *Caterpillar Tractor Company.* **(Book for sale *only*; price $1.25)** 104-pages heavily illustrated with photos, this book "50 Years on Tracks" tells a portion of history never before told in one volume—the story of the track-type tractor; contains series of separate, chronological essays; some photos over 60 years old. The book affords a clear glimpse at workings and characteristics of the entire industry.

11. TRACTOR SHOVEL. *Frank G. Hough Co.* 12-page 3-hole punched folder (245) describes, illustrates with photos and diagrams, and gives specifications for the Hough Model HE ¾ cu. yd. Payloader tractor shovel with 4 forward and 4 reverse speeds; on-the-job photos included.

12. CRAWLER CRANE. *Manitowoc Engineering Corp.* 12-page brochure (39-50) describes, illustrates, shows capacities and gives specifications for the Manitowoc Model 3900 Speedcrane; diagrams show ease of shipment to various jobs with minimum of dismantling.

13. WOOD ROOF TRUSS. *Timber Engineering Co.* 12-page booklet "Timber Fabrication and Assembly With Teco Connectors" details essentials of wood roof truss construction; describes and pictures the two basic methods of timber truss fabrication (preassembly and prefabrication) and describes proper procedures for erecting timber trusses and tightening the joints.

14. PROTECTIVE COATING. *Pennsylvania Salt Mfg. Co.* Complete product information offered on Thick-Coat (new resin coating), including specifications, estimating data and directions.

15. TRENCHER. *Parsons Co.* New 2-color catalog "Parsons Digs 5 ft.-9 in. Deep" contains photos and a complete description of the Parsons wheel-type trenching unit—the Model 150 Trenchliner; describes the sensitive hydraulic power system feature.

16. SAFETY EQUIPMENT. *Willson Products, Inc.* 68-page general catalog (54) "Willson For Industrial Safety," in 4 sections (eye, head, and respiratory protection, and welding), with photos, descriptions and ordering information, gives Willson line of industrial safety equipment.

Reader Service Department **APRIL, 1955**
Railway Track and Structures
30 Church Street, New York 7, N. Y.

Please send literature circled below:

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9	10	11	12	13	14	15	16

Also, please send additional information as follows (show company, product & page number): .....

.....

Name ..... **Title or Position** .....
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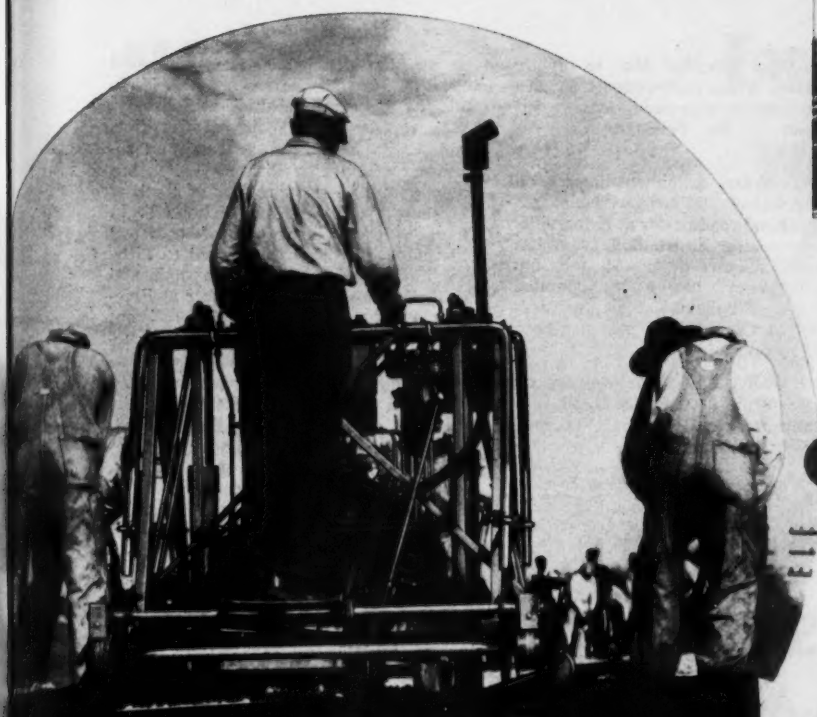
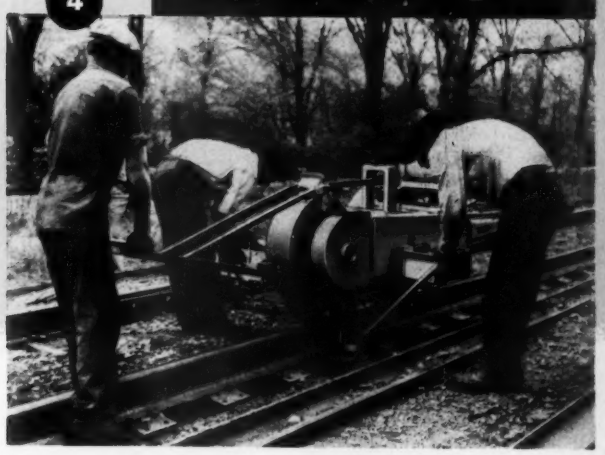


4 WAYS

TO SAVE TIME AND MONEY ON TRACK MAINTENANCE OPERATIONS



. . . equip your gangs with these efficient NORDBERG "Mechanical Muscles"®

1 NORDBERG *POWER JACK* . . . Raises track hydraulically, maintains alignment, and speeds up tie renewal, ballasting and general surfacing operations. Simple to operate and maintain, the Power Jack is thoroughly proved through years of use.

2 NORDBERG *GANDY* . . . A triple-purpose machine: Tie Puller; Tie Inserter; and Light Material Handling Crane. It is used to pull out old ties, insert new ties, pile or load old ties, set machines on or off the track, distribute new ties, including hauling them to the work location and is a great money saver in bridge timber renewal.

3 NORDBERG *HYDRAULIC SPIKE PULLER* . . . Simple, positive hydraulic ram that automatically ejects spikes. Provides flexibility and economy in tie renewal, switch renewal and bridge work—pulls spikes quickly on either rail and can be operated on-track or off-track.

4 NORDBERG *SPIKE HAMMER* . . . A fast machine for driving spikes *straight and vertical to the tie.* Like the other widely used Nordberg "Mechanical Muscles," this rugged machine also has the advantage of saving time, reducing costs and doing a better job than is possible with other methods.

It will pay you to investigate the full line of modern, money-saving Nordberg track maintenance machinery for meeting today's maintenance needs. For further details on any or all of these Nordberg machines, write for literature.

NORDBERG
"Mechanical Muscles"®

ADZING MACHINE • BALLAST ROUTER • CRIBEX® • BALLASTEX® • SCREENEX® • HYDRAULIC and MECHANICAL SPIKE PULLERS • SPIKE HAMMER • TIE DRILL • POWER JACK • POWER WRENCH • RAIL DRILL • RAIL GRINDERS • TRACK SHIFTER • DSL® YARD CLEANER • TRAKLINER • GANG TAMPER • DUN-RITE GAGING MACHINE • GANDY—TIE PULLER and INSERTER

NORDBERG MFG. CO., *Milwaukee, Wis.*

NORDBERG MACHINERY

was named supervisor at Richmond. He was transferred in the latter capacity to Fredericksburg in June 1952, where he served until his recent advancement.

Track

B. E. Cors, track supervisor on the Aurora division of the Burlington, has been promoted to roadmaster at Beardstown, Ill., succeeding **C. Olson,** who has been transferred to Galesburg, Ill., replacing **W. T. Iverson.** Mr. Iverson has been transferred to another division with headquarters as before at Galesburg, succeeding **D. E. Henry,** who has been transferred to Hannibal, Mo., to replace **L. R. Hall,** whose appointment as district maintenance engineer at Omaha was announced in the February issue of *RT&S.*

W. H. Snyder, acting roadmaster on the Rock Island at Fairbury, Neb., has been appointed roadmaster at Estherville, Iowa, succeeding **E. Rholloff,** who has been assigned other duties. **M. Johnson,** track supervisor, has been appointed roadmaster at Belleville, Kan., succeeding **J. C. McConnell** who also has been assigned to other duties.

D. R. Wolfe, supervisor of track on the Pennsylvania at Crestline, Ohio, has been transferred to Dennison, Ohio, succeeding **W. B. Knight,** whose promotion to assistant division engineer is noted elsewhere in these columns. **W. J. Nicholl, Jr.,** supervisor of track at Salisbury, Md., replaces Mr. Wolfe at Crestline, and **A. W. Levergood, Jr.,** assistant supervisor of track at Pittsburgh, Pa., has been promoted to supervisor of track at Salisbury, replacing Mr. Nicholl. **T. L. Ray,** assistant supervisor of track at Cleveland, has been transferred to Pittsburgh, succeeding Mr. Levergood, and **F. R. Weisenant,** junior engineer at Freedom, Pa., has been promoted to assistant supervisor of track at Cleveland, succeeding Mr. Ray. **W. C. Wieterts,** assistant main-line supervisor track, has been promoted to supervisor of track on the Pennsylvania's subsidiary, the Pennsylvania Reading & South Shore at Tuckahoe, N. J., succeeding **J. L. Lockhard,** who is exercising his seniority. **L. J. Towne, Jr.,** assistant supervisor of track at Northumberland, Pa., replaces Mr. Wieterts, and **E. B. Hench,** track foreman at Philadelphia has been promoted to assistant supervisor of track at Northumberland, succeeding Mr. Towne.

J. R. Miller, supervisor of track on the St. Louis division of the Illinois Central, at Duquoin, Ill., has been transferred to the Mississippi division with headquarters at Corinth, Miss., succeeding **H. F. Davenport,** whose promotion to assistant division engineer is noted elsewhere in these columns. **G. G. Phillips,** acting supervisor of track at Grenada, Miss., replaces Mr. Miller as supervisor of track on the St. Louis division at Duquoin.

T. D. Styles, who has been appointed supervisor of track on the Richmond, Fredericksburg & Potomac at the Potomac Yard, Alexandria, Va. (*RT&S,* March, pg. 116), was born September 16, 1923, in Chesterfield County, Va. He attended Virginia Polytechnic Institute and began his service with the RF&P as an assistant foreman in May 1951. Between June 1951 and October 1953, Mr. Styles served as a student engineer at various points, after which he was appointed assistant supervisor of track at Richmond, the position he was holding at the time of his recent promotion.

Bridge and Building

J. D. Woodward, who has been promoted to supervisor of structures on the Atlantic division of the Pennsylvania at Camden, N. J. (*RT&S,* March, pg. 118), was born at Suffolk, Va., December 21, 1924. He attended Kansas State College and began his railroad service with the PRR in June 1949 as a junior engineer in the B&B department at Indianapolis. He later served in this same capacity at Crestline, Ohio, and was promoted to assistant supervisor of structures on the Pittsburgh division at Pittsburgh in April 1951.

Special

Scott B. Howatt, assistant general fire prevention engineer on the Southern Pacific at San Francisco, has retired after more than 50 years of railroad service, 37 of which were spent in continuous service with the SP.

Railway Personnel (Cont'd)

A. G. Beatty has been appointed acting supervisor scales and work equipment on the Chicago & North Western, succeeding **R. W. Bailey,** whose appointment to acting division engineer is noted elsewhere in these columns.

Association News

Roadmasters' Association

Under the direction of President R. G. Simmons, the Executive committee of the Roadmasters' Association held a meeting at the Chicago Engineers' Club on March 14.

Among other things, the committee discussed preliminary plans for the annual convention, to be held at the Conrad Hilton Hotel, September 19-21, the progress being made in publishing the Pro-

Organizations

American Railway Bridge and Building Association—Elise LaChance, Secretary, 431 S. Dearborn street, Chicago 5. Next annual meeting, September 19-21, 1955.

American Railway Engineering Association—Neal D. Howard, Secretary, 59 E. Van Buren street, Chicago 5.

American Wood-Preservers' Association—W. A. Penrose, Secretary-treasurer, 839 Seventeenth street, N. W., Washington 6, D. C.

Bridge and Building Supply Association—L. R. Gurley, Secretary, 201 North Wells street, Chicago 6.

Maintenance of Way Club of Chicago—E. C. Patterson, secretary-treasurer, Room 1512, 400 W. Madison street, Chicago 6.

Metropolitan Maintenance of Way Club—Secretary, 30 Church street, New York.

Mississippi Valley Maintenance of Way Club—P. E. Odom, Secretary-Treasurer, Room 1008, Frisco Building, 906 Olive street, St. Louis 1, Mo.

National Railway Appliances Association—Kenneth Cavins, Secretary, 310 S. Michigan avenue, Chicago 4; Lewis Thomas, Assistant Secretary, 59 East Van Buren street, Chicago 5.

Northwest Maintenance of Way Club—L. C. Blanchard, secretary-treasurer, Room 27, Milwaukee Depot, Minneapolis 1, Minn.

Railway Tie Association—Roy M. Edmonds, Secretary-Treasurer, 1221 Locust street, St. Louis 3, Mo. Next annual meeting, October 26-28, Peabody Hotel, Memphis, Tenn.

Roadmasters' and Maintenance of Way Association of America—Elise LaChance, Secretary, 431 S. Dearborn street, Chicago 5. Next annual meeting, September 19-21, 1955.

Track Supply Association—Lewis Thomas, Secretary, 59 E. Van Buren street, Chicago 5.

ceedings of the 1954 convention, and the status of the committee reports now under preparation for presentation at the coming convention.

Mississippi Valley Maintenance of Way Club

The April meeting of the club will be held on the 11th at the usual place of meeting, the Hotel DeSoto at St. Louis. The program will consist of a panel discussion of developments and procedures in the use of mechanized equipment for maintenance-of-way work. The panel will consist of Claude Johnston, division engineer, Louisville & Nashville, Birmingham, Ala.; H. C. Fox, process engineer, Southern, Atlanta, Ga.; R. H. Egbert, chief engineer, Toledo, Peoria & Western, Peoria, Ill.; and J. E. Eisemann, district engineer, Gulf, Colorado & Santa Fe, Galveston, Tex.

National Railway Appliances Association

New officers, who will serve until the next exhibition of the association in March, 1958, were elected during the group's triennial meeting March 15 at the Coliseum in Chicago. The new president is W. H. Tudor, International Harvestor Company, who was moved up from vice-president. R. A. Carr, Dearborn Chemical Company, and formerly treasurer of the association, is the new vice-president. J. B. Templeton, Templeton, Kenly & Co., who was secretary of the NRAA, was elected treasurer, and Kenneth Cavins, Fairmont Railway Motors, Inc., and formerly a director, was elected secretary. R. B. Little, Eaton Manufacturing Company, was elected to a three-year term as a director.

Bridge & Building Association

The Executive committee of the Association met at the Chicago Engineers' Club on March 14. Several important items of business were discussed, including preliminary plans for the annual convention to be held September 19-21 at the Conrad Hilton Hotel, Chicago in conjunction with the annual meeting of the Roadmasters' Association.

Northwest Maintenance of Way Club

The next meeting of the club will be held on April 28 at the Midway Civic Club, 1931 University Avenue, St. Paul. This will be the last meeting of the season, and officers to serve during the ensuing year will be elected.

The formal program will consist of two addresses on railway bridge projects. J. E. Hoving, assistant chief engineer, Northern Pacific, will describe a project involving the raising and lengthening of the Northern Pacific's bridge across the Columbia river between Pasco, Wash., and Kennewick. R. W. Gustafson, bridge engineer, Great Northern, will tell how his road replaced its bridge No. 12 over Puget Sound near Anacortes, Wash.

Supply Trade News

General

The Woolery Machine Company, Minneapolis, Minn., has named the **Mississippi Supply Company,** 80 East Jackson Blvd., Chicago, its exclusive sales agent for the Chicago area.

The **Duff-Norton Manufacturing Company,** Pittsburgh, has purchased the **Coffing Hoist Company,** Danville, Ill., and will operate the firm as its Coffing Hoist Division. At the same time, Duff-Norton has changed its name from the Duff-Norton Manufacturing Company to **Duff-Norton Company.**

Coffing produces a variety of hand and electric-operated hoists and allied products. Operations and personnel of the new division will continue unchanged at the Coffing plant, except that **Frederick W. Coffing,** president and co-founder of the 26-year old company, will retire. He will continue to be associated with the new division, however, as a consultant. **J. R. Coffing,** who has been vice-president—sales; **J. F. Bookwalter,** vice-president—manufacturing; and **George Buck,** secretary-treasurer, will continue to direct the affairs of the Coffing Hoist Division as a management committee.

The **Pacific Coast Borax Company,** a division of **Borax Consolidated, Ltd.,** has announced the opening of a new district sales office in Kansas City, Mo. The new office located at 4010 Washington Street will serve as headquarters for the three divisions of the company, namely: Package, Agricultural Sales, and Industrial Sales.

Howard B. Cain has been appointed Package Department sales manager, and **F. M. Dosch,** assisted by **J. G. Neckerman,** will be in charge of the Agricultural Sales division. **Jack Loesel** will head Industrial Sales.

W. J. Dibble, formerly associated with the Oronite Chemical Company, has been named general sales manager, Western division, Bulk department, of Pacific Coast Borax at Los Angeles.

Mr. Dosch, who has been associated with Pacific Coast Borax since 1950, holds a Master of Science degree in Agronomy. Prior to his new appointment, he had been stationed at field offices in Sioux City, Iowa, Amarillo, Tex., and Kansas City.

In his new position, Mr. Dibble will supervise the operations of the Agricultural Sales Division on the West Coast and will also be responsible for Industrial Sales in the western states. He is a graduate of Knox College and Harvard Business School. During World War II he served in the Navy in aviation ordinance and was discharged as a lieutenant commander.

Personal

James F. McCartney, general sales manager for the **Duff-Norton Company,** Pittsburgh, since 1950, has also been elected a vice-president of the company. Mr. McCartney will direct all of Duff-Norton's sales activities, including those of the Coffing Hoist Division. Formerly the Duff-Norton Manufacturing Company, Duff-Norton shortened its name after acquiring the Coffing Hoist Company, Danville, Ill., on March 1.

Paul J. Every has been appointed assistant general sales manager of the Cummins Engine Company, Inc., Columbus, Ind. Mr. Every has been associated with Cummins since November 1, 1947, and, as manager of regions, was in charge of the operation of the 12 domestic Cummins regional offices, and the handling of domestic distributor activities. For the past two years he has been responsible for the world-wide activities of Cummins Diesel Export Corporation.

C. M. Basil, vice-president in charge of operations of the **Link-Belt Speeder Corporation,** has been named vice-president of manufacturing and sales. **Gordon W. Rowand,** assistant sales manager, has been promoted to sales manager. Both men will make their headquarters at Cedar Rapids, Iowa.

R. N. Chipman, manager of the Railroad Weed Control Department of the **General Chemical Division, Allied Chemical and Dye Corporation,** has been named consultant on railroad weed control, and **W. P. Morrison,** assistant mana-

ger of the Railroad Weed Control Department, has been made manager. Mr. Chipman will continue to serve as General Chemical's consultant to railroads throughout the country on weed control problems. Mr. Morrison, who joined General Chemical in 1954 as assistant manager of the department, is a graduate of Washington and Lee University, and was formerly associated with Sperry Rail Service.

J. E. Kunkler, manager of Southern California and Arizona sales for the Calco division of **Armco Drainage & Metal Products, Inc.,** has been named sales manager of the Southwestern division, at Houston, Tex. **J. E. Evans,** Michigan State sales manager for the Great Lakes division, succeeds Mr. Kunkler as manager of Southern California and Arizona sales for the Calco division at Los Angeles.

Mr. Kunkler joined Armco in 1941 as an engineering draftsman, and subsequently served as sales engineer, division sales engineer for the Eastern division and district sales engineer for the Southern California and Arizona territory, before being appointed Southern California and Arizona sales manager for the Calco division.

Mr. Evans joined Armco in 1946 after serving as a contractor's construction superintendent. He began as an engineering salesman for the Eastern division and was advanced to Michigan State sales manager for the Great Lakes division in 1948.

Donovan Stevens, who formerly handled engine sales to manufacturers for the **International Harvester Company,** has been appointed head of Industrial Power sales to national-user accounts, succeeding **Walter H. Tudor,** who has been appointed Industrial Power territorial manager for the Chicago area.

In his new position, Mr. Stevens will work in the sales development section on

Donovan Stevens

sales to railroads, airlines, pipe-line companies and other national buyers of IH Industrial Power products.

William G. Herzig, manager of railroad sales for the Chicago branch of **Fairbanks-Morse & Co.,** has been named manager of the railroad products sales department, Railroad Division, at Chi-

Supply Trade News (Cont'd)

cago, succeeding **J. F. Marquitz,** who has retired. **C. H. Morse, Jr.,** manager of the locomotive service department, has been advanced to Western Regional manager, Railroad Division.

Mr. Herzig, who has been with the company for nine years in various sales capacities, will maintain offices in the company's headquarters at 600 S. Michigan Ave.

Mr. Morse has held a number of positions in the Railroad Division during the past few years, having been successively manager of locomotive sales for the Chicago area, assistant manager of the locomotive service department, and for the last four years, manager of the locomotive service department. In his new position Mr. Morse will have responsibility for the sale of all company products through all railroads in the Middle and Far West.

William G. Herzig (left), and C. H. Morse, Jr. (right).

Obituary

Ray J. Platt, general manager, Positive Rail Anchor Company, Chicago, died on March 10 after a long illness.

What Our Readers Think

Urges Wide Use of Golden Rule

Spokane, Wash.

TO THE EDITOR:

I have read and re-read your February issue; it is a splendid set-up. Am particularly calling your attention to the article by W. E. Cornell on "M/W Safety and the Golden Rule." To me this is an outstanding article; I have seldom seen or heard a more appealing appraisal of the safety problem. If only all safety supervisors (as well as all others) would raise their sights to the Golden Rule standards, I think a marked rise of efficiency would occur. I suggest you have an editorial on this subject.

HUGH M. TREMAINE
District Engineer (Retired)
Northern Pacific

[*Editor's comment—The suggestion for an editorial is a splendid one but we couldn't hope to handle the subject more competently or with greater authority than Mr. Cornell.*]

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- Do ditching, light grading, weed mowing.
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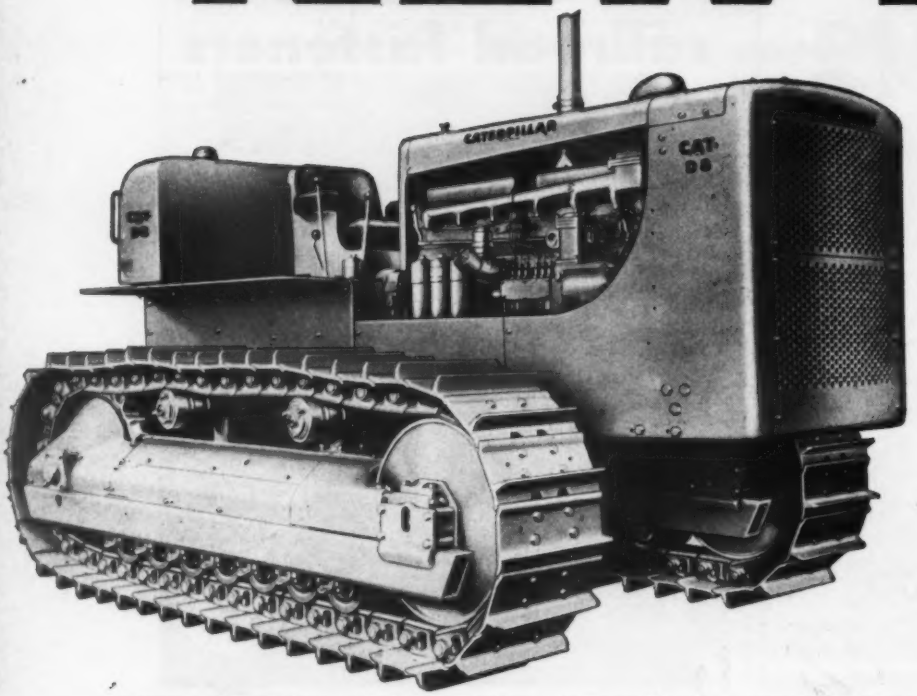

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